The Croonian Lectures

ON

MUSCULAR MOVEMENTS AND THEIR REPRESENTATION IN THE CENTRAL NERVOUS SYSTEM.

Delivered before the Royal College of Physicians of London

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LECTURE I.

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MR. PRESIDENT AND GENTLEMEN,—I have first to express to you, Sir, and to the Council of this College, my most sincere thanks for the great honour which you have conferred on me in selecting me to deliver the Croonian lectures. I feel very deeply the responsibility of undertaking this duty and when I regard the roll of distinguished Fellows who have preceded me my task is indeed difficult, and though I fear that I shall not attain the higher standard which they have set, my endeavour will be to lay before you to the best of my ability some investigations on muscular movements on which I have been working for some years. The choice of my subject will also, I think, be in harmony with the wishes of the founder of these lectures, for while the Croonian lectures at this College are directed to be given on one or more subjects in anatomy, physiology, and pathology, with a view to the prevention, control, and cure of disease, the Croonian lecture to be delivered annually before the Royal Society is required to be on the nature and laws of muscular motion. So that we may infer that the founder himself took a great interest in the muscular system.

In taking the subject of muscular movements the first question which would naturally arise is: Which is the best method to ascertain the action of a muscle? To determine the action of a muscle there are three chief methods—first, the anatomical method, which is employed on the dead subject and consists in dissecting out a muscle, freeing it from its connexions, but leaving it attached at its origin and insertion. The muscle is then pulled upon by the dissector and the resultant position of the limb is taken to show the action which the muscle would exercise during life. Or a muscle is seen to have a certain origin and insertion, so that if it contracted it must produce an approximation of the two parts. As an instance of this may be mentioned the inspiratory action of the latissimus dorsi muscle which from its origin from the lowest three or four ribs and its insertion into the humerus has been looked upon as a muscle of forced inspiration, for it was concluded that if when the humerus was fixed the muscle contracted its only action would be to elevate the ribs, whereas its chief aim is expiratory, as we shall see later. This—which I have called the anatomical method—is the only means which we have of obtaining knowledge of the action of muscles too deeply seated to be examined during life, such as the quadratus lumborum and the external rotators of the hip-joint. It has, however, the following great disadvantages. It gives the action of the individual muscle and thereby leads one to imagine that this particular muscle acts by itself. It gives all the possible actions of a muscle and postulates that in all these possible actions the muscle must take part. With regard to these objections I think that there is hardly an instance in the whole body of a movement in which only one muscle takes part and it would therefore be necessary to know the particular share of the other muscles in the movement and the manner in which they affect the action of the muscle under consideration. It does not follow because a certain movement can be produced on a joint by traction on the dissected muscle that therefore the muscle must be used during life for this movement, as it may not be advantageous to use the muscle for this purpose.

The second, or electrical method, is the one which was employed by Duchenne with such great success and his classical observations on the actions of muscles will always rank as one of the most brilliant achievements in the subject. The method consists in faradising with the two poles of an induction coil the muscle under examination and then noting the action produced on the joint or joints over which the muscle acts. The results of this method have given most valuable information as to the action of the muscles, and where the muscles are superficial enough to be reached by the current this method is much preferable to the anatomical method in that the movements are produced by the living muscle undisturbed in its relation to surrounding parts. I venture to think, however, that this method is open to the same objections as the anatomical method in that although every movement that the muscle is capable of is undoubtedly produced, yet as the muscle does not act alone we do not know what the influence of the other muscles may be which also enter into the movement, and also there is the second objection that we do not know by this method whether a muscle which on stimulation gives the movement, let us say, of supination is included in the movement of supination, when this is performed as a voluntary act.

It seems to me that although these two methods will tell us what a muscle may do it does not tell us what a muscle does do, and we cannot say for certain that a muscle has a definite action without following the precept of the immortal Harvey, and going direct to nature and there testing the results obtained by the anatomical and electrical methods. This last method, which we call the physiological or natural method, differs from the first two in reversing the order of procedure. In the anatomical and the electrical methods one muscle is taken and by dragging on it or stimulating it to contract certain movements are produced; whereas in the physiological method a living person is told to perform a definite movement and it is then observed which muscles take part in this movement.

Certain precautions have to be taken in using this method, the most important being that the person shall perform by fixation of the limb the movement only which is required, so that, for example, if a person is told to pronate the forearm he must not at the same time abduct the shoulder and thereby bring into action other muscles than those concerned directly with pronation. The means which I have used for determining whether a muscle is taking part in any given movement are inspection and palpation either of the muscle as a whole or of its tendon. I have examined both normal people and patients who have lost the use of some of their muscles. The movements have been performed in three ways: (1) by moving the limb only without any extra weight; (2) by moving the limb loaded with different weights; and (3) by attempting to move the limb which is fixed by an opposing force. The first procedure gives the minimum work which the muscles entering into any movement are called upon to do. The least possible work that a group of muscles can do is to overcome the inertia of a joint. This can be accomplished in the elbow by placing the upper arm on a support in a horizontal position and then flexing or extending the forearm on it in a horizontal plane; by this means the action of gravity can be neutralised. Or with the upper arm resting horizontally the forearm can be placed vertically and the movements of pronation and supination can be carried out. The next degree of work is that afforded by lifting the limb against gravity, as in flexing the forearm when the humerus is in the vertical position alongside the trunk. The third procedure gives the greatest work that the muscles can perform and as by reason of the fixation of the limb there is no alteration in the angle of the joint the error is avoided of assuming that the tightening of a tendon from the stretching of a passive muscle is evidence of contraction of the muscle. The second method would give the intermediate conditions between the two extremes of maximum and minimum work. The amount of work done by the muscles was measured by spring balances or by the traction scale of a clinical dynamometer.

With the exception of Winslow[1] and Duchenne I am unable to find that writers on anatomy as a rule take their knowledge of the action of muscles from the living subject. James Benignus Winslow, whom Duchenne rightly styles the "Admirable Winslow," and who, although his name has an English sound, was professor of physic, anatomy, and surgery in the University of Paris in the eighteenth century,

[1] An Anatomical Exposition of the Structure of the Human Body, by James Benignus Winslow. Translated from the French original by G. Douglas, M.D. Fourth edition, corrected. 1756.

speaks with no uncertain note when he writes that "the Experiments made on dead Bodies, by pulling the muscles after they have been raised, are very fallacious." There are lists of muscles which are given under the different heads of flexors, extensors, rotators, abductors, adductors, &c., but how are these lists obtained? They are made by putting into one category, for instance, all the single muscles which are labeled flexors, &c., and such a list does not express a combination which has been verified by actual inspection during life. I venture to think that, if all the muscles contained in some of these lists contracted the movement produced would not be the one which is expected and I trust to be able to show that the actions which are ascribed to some of the muscles cannot be substantiated when put to what I think will be admitted to be the only true test—their actions in the living subject. In examining a case of muscular atrophy the chief difficulty consists of knowing what movements to ask the patient to perform in order to find out whether a particular muscle is acting or not. I trust that the time will come when the actions of muscles will be taught on the living subject together with the part which they take in the performance of simple movements.

I now propose to take the movements of some of the joints of the body and to describe the muscles which take part in producing the movements as observed in the living subject. For convenience I shall begin with the movements of the upper limb. I shall use in all cases the Latin names for the muscles and I would like here briefly to express my regret in these days, when the idea of a universal language is so much discussed, that in anatomy so many nations prefer to use the vernacular instead of the Latin name which is intelligible to everyone. For instance, the serratus magnus is described in foreign modern anatomical works as the "grand dentelé" and the "vorderer Sägemuskel," and when we come to the anatomy of the brain the corpus geniculatum externum becomes the "corps genouillé" in French and the "äusserer Kniehöcker" in German. I am glad to say that in this country we have not followed this practice and that we do not talk as yet of the "front saw muscle" or the "outer knee-knob." It would save much trouble if every nation adopted the Latin terms, a decision which I believe the International Nomenclature Committee has arrived at.

Taking some of the movements of the upper limb, and beginning with those of the fingers, I would remind you that the first phalanges of the fingers are flexed on the metacarpal bones by the interossei and lumbricales, an anatomical discovery which was made by Columbus and Fallopius in 1559 and 1561 and which, according to Duchenne, was lost sight of till he (Duchenne) again called attention to it, but this is hardly correct as it was already mentioned by Winslow,[2] and John Hunter[3] refers to it in his Croonian lecture delivered before the Royal Society in 1777. The first phalanges are also flexed by the tendons of the flexores digitorum on their way to the terminal digits. If, however, it is required to flex the last two phalanges of each digit, but not the first, the extensor communis digitorum is brought into action—a muscle which extends the first phalanx more than the last two phalanges. If the movement of flexion of the fingers is required without any movement of the wrist, then along with the flexores digitorum the extensores carpi radialis longior and brevior and ulnaris contract.

The extension of the second and third phalanges is, as is well known, produced by the two sets of muscles, the extensor communis digitorum and the interossei and lumbricales which are inserted into the common extensor tendons. The action, therefore, of these small muscles is to flex the first phalanx and to extend the second and third phalanges. Duchenne[4] is strongly in favour of the theory that the action of the extensor communis digitorum on the last phalanges is exceedingly limited and that it is not an extensor of all the phalanges but that it only has a true action on the first phalanx and he proposes to call it the extensor of the first phalanx. He also states in another part of his book, "Physiologie des Mouvements," that the interossei and lumbricales are in reality the sole extensors of the last two phalanges and the sole flexors of the first phalanx. It is no doubt true that when the extensor digitorum is paralysed the last two phalanges can be extended by the interossei and lumbricales and also that in the "claw-hand" there is inability to extend the last digits when these small muscles are paralysed. In the latter case if the first phalanges be kept passively flexed on the metacarpus, then the person is able to extend the terminal digits, so that it seems probable that the inability of the extensor digitorum to extend the terminal phalanges is due to its energy being expended on the first phalanges which are not prevented from extending by the interossei and lumbricales which are now paralysed.

The extension of the proximal phalanges on the metacarpus by the extensor communis digitorum is accompanied, as Duchenne[5] pointed out, by contraction of the flexors of the carpus—viz., the flexores carpi radialis and ulnaris and palmaris longus. In lead poisoning where there is paralysis of the extensor communis digitorum and not of the extensores carpi the patient can, if he keeps his fingers flexed, extend the hand on the forearm, but if he wishes to extend his fingers, his first phalanges remain immoveable and his hand is flexed on the forearm with as much energy as he makes in his greatest effort to obtain extension of the fingers. The explanation of this combination will be discussed later when we consider the synergic action of muscles.

The lateral movements of the fingers are adduction toward the middle finger and abduction away from the line of the middle finger. Adduction is performed by the palmar interossei and abduction of the three large fingers by the dorsal interossei, but with abduction of the index finger and the little finger other muscles come into action. It is exceedingly difficult to abduct the index finger without adducting or flexing the thumb, from the fact that the first dorsal interosseus or abductor indicis arises from the metacarpal bone of the thumb as well as from that of the index finger, so that if it is required to abduct the index finger alone the extensores ossis metacarpi and primi internodii of the thumb are called into action to prevent the thumb moving. Abduction of the little finger is performed by the special abductor minimi digiti, but as this arises from the pisiform bone this latter has to be fixed by the flexor carpi ulnaris. To obviate the special action of the flexor carpi ulnaris on the wrist the extensor ossis metacarpi pollicis contracts and when the hand is in a line with the forearm it is apparently impossible to abduct the little finger without the extensor ossis metacarpi contracting; if, however, the hand be first adducted to the ulnar side the contraction is less marked.

The movements of the thumb are flexion and extension and take place in a plane parallel to the palm of the hand, of all three joints of the thumb, and also abduction and adduction of the metacarpo-carpal joint in a plane at right angles to the one just mentioned. In addition there is opposition of the thumb to the fingers. Now with regard to the movements of the first metacarpus on the carpus, in the movements of flexion and extension which take place in a plane parallel to that of the palm of the hand the palmar surface of the thumb is at right angles to the palm of the hand, but in the movement of abduction it seems to me that it is difficult to perform this movement without rotating the thumb inward so that the palmar surface of the thumb is opposed to that of the fingers. Therefore in abducting the thumb it passes naturally into the position of opposition and from that position it can be advanced towards the tips of the fingers in succession, but more rotation will be required to oppose it to the index finger than to the fourth finger. Taking the terminal phalangeal joint of the thumb first, flexion, as is well known, is performed by the flexor longus pollicis and if this movement alone be required the extensor primi internodii contracts to prevent the first phalanx being flexed on the metacarpus. Extension of the last phalanx is performed by the extensor secundi internodii pollicis, but, as was pointed out by Duchenne, this simple movement cannot be performed without also calling in the action of the abductor pollicis, the flexor brevis pollicis, and the adductor pollicis, as these small muscles send prolongations to the tendon of the extensor secundi internodii (Sabatier, Bouvier, and Duchenne), so that by the action of these small muscles the last phalanx can be extended without extending the first phalanx.

The movements of the metacarpo-carpal joint of the thumb are more complicated and besides flexion and extension there is opposition. Flexion of the metacarpal bone of the thumb is caused by the opponens pollicis and by the abductor flexor brevis and adductores pollicis, transversus and obliquus as they are now called, when flexion of the first phalanx is also required, but when flexion of the metacarpal bone is required with extension of the phalanges there is also some

[2] Loc. cit., vol. i., sect. iii., No. 966.
[3] The Works of John Hunter, F.R.S., 1837.
[4] Physiologie des Mouvements, 1867, p. 164.
[5] Loc. cit., §§ 168, 169.

action of the extensor primi internodii pollicis. Flexion of the metacarpal bone is also effected by the flexor longus pollicis after the metacarpal joints are flexed. Extension of the metacarpal bone is performed by the extensor ossis metacarpi and also by the extensor primi internodii. At the same time, as was pointed out by Duchenne, it is not possible to extend the metacarpal bone and the first phalanx of the thumb without putting into action the extensor carpi ulnaris and also, I would add, the flexor carpi ulnaris, which, however, does not come into action so soon as the extensor. The reason why these muscles are brought in will be discussed later; at present I would lay stress on the impossibility of extending the thumb without putting these other two muscles into action and also that this action occurs in all positions of the wrist even when it is in that of extreme abduction, a position in which it would not be possible for the extensor ossis metacarpi to move the wrist further in the direction of abduction.

Abduction of the thumb is performed by the small thumb muscles—viz., the abductor pollicis, opponens pollicis, and outer head of the flexor brevis, and also by the extensor ossis metacarpi and primi internodii. This is not in accordance with Duchenne[6] who from electrical observations states that the extensor ossis metacarpi is one of the opposing muscles of the thumb and not its abductor, while the extensor primi internodii is not an extensor of the first metacarpal but is the only direct abductor. If by abduction is meant carrying the thumb away from the first finger in a plane at right angles to the palm I think that there is no doubt that the tendons of both these two extensors of the thumb can be felt to contract. There is one important point with regard to this movement and that is that though it is possible to abduct the thumb when the extensors of the thumb are paralysed it is quite impossible for the extensors of the thumb to abduct in the slightest degree when the small thumb muscles are paralysed; in fact, inability to abduct the thumb is one of the best tests for the absence of the small muscles of the thumb. In adduction of the thumb from the position of abduction it rotates from within outwards and this movement is performed by the adductor transversus and probably the obliquus and by the extensor secundi internodii, as shown by Duchenne. When, however, the thumb has passed the middle point of its movement I find that the flexor carpi ulnaris also contracts, probably to counteract the extension of the wrist by the extensor secundi internodii. Opposition is best performed after abducting the thumb and from that position advancing it to meet the fingers; the muscles which take part in this movement are the abductor pollicis, the opponens pollicis, the flexor brevis, and the adductores pollicis. According to Duchenne[7] the abductor chiefly opposes the thumb to the first two fingers and the flexor brevis to all the fingers, while he also includes the extensor ossis metacarpi, which, according to him, is one of the chief opposers of the metacarpal bone and not its abductor; but it seems to me that although it does act in abducting the thumb and putting it in the position of opposition it ceases to act as soon as any resistance is made to the opposition. The movement of opposition is therefore preserved when the extensor ossis metacarpi is paralysed and lost when the thenar muscles are paralysed. It is interesting to note that Duchenne[8] from electrical observations ascribes to the adductor pollicis four different movements on the metacarpal bone of the thumb—viz., adduction, abduction, extension, and flexion. With this I am not able to agree as I cannot find that the muscle takes part in abduction or extension in any position of the bone and I think it is an instance where the actions obtained by electrical stimulation of a muscle do not find their counterpart in the voluntary movements in the living body. It postulates that a muscle may act as a primary mover in two movements which are diametrically opposed to each other, a condition which I believe does not exist in the human body and which I shall refer to later.

We have next to consider the combined movements of the fingers and thumb, as in grasping an object. Here all the muscles which flex the different joints of the fingers and thumb come into action and in addition to these muscles the extensors of the wrist take part in the action just as they take part in that of flexion of the first phalanges of the fingers. This combination was definitely pointed out by Duchenne[9] who stated "that the synergic action of the extensors of the wrist is absolutely necessary to the flexion of the fingers and the force of their contraction is then proportional to the energy of this flexion."

The movements of the wrist are flexion, extension, radial lateral movement or abduction, and ulnar lateral movement or adduction In addition to the definite flexors of the wrist—viz., flexor carpi radialis, flexor carpi ulnaris, and palmaris longus—the flexors of the fingers become also flexors of the wrist, but this depends on where the resistance is made. If the resistance is made against the phalanges then the flexores digitorum do flex the wrist after they have flexed the fingers, but if resistance is made against the metacarpal bones so that only pure flexion of the wrist is required then the flexors of the digits contract. With regard to the muscles of the thumb, the extensor ossis metacarpi, as stated by Duchenne,[10] is a flexor of the wrist. Extension of the wrist is performed by the three extensors of the wrist and also by the extensor secundi internodii to a slight degree but not by the other two extensors of the thumb. The question of the part played by the extensors digitorum will be discussed presently. Abduction of the wrist is performed by the flexor carpi radialis, the three extensors of the thumb, and the extensor radialis longior, and adduction by the flexor carpi ulnaris and the extensor carpi ulnaris. It is interesting to note that Duchenne[11] from electrical stimulation denies that the flexor carpi ulnaris is an adductor or that the flexor carpi radialis is an abductor of the wrist. In reply to that I would say that in performing the movement of adduction and abduction these muscles can be felt to contract and it shows how important it is that results obtained by electric testing should be verified by reference to the living body. The action obtained by electrical stimulation is that of the muscle acting alone, a condition which does not exist in the body unless all the other muscles are paralysed. In passing round from the movement of flexion of the wrist to adduction the flexor carpi ulnaris is either contracting with the palmaris longus in flexion or with the extensor carpi ulnaris in adduction. It is quite possible that if this last muscle, the extensor carpi ulnaris, were absent the flexor carpi ulnaris would not be able to adduct the wrist alone. Now, according to Duchenne[12] faradisation of the extensor carpi radialis longior and of the extensor carpi ulnaris alone produces extension with abduction and adduction respectively, so that these two muscles acting alone could not produce pure abduction or adduction; to do so each must act with the flexor carpi radialis and ulnaris respectively.

In reference to the movements of extension and flexion of the wrist an important question arises as to the part taken by the extensors and flexors of the fingers in this movement. It is mentioned by Duchenne,[13] and whether he was the first to point it out I do not know, but it is an observation which has been frequently confirmed, and I have already referred to it in speaking of the synergic action of the extensors of the fingers and the flexors of the wrist, that in lead paralysis affecting the extensor communis digitorum, but not the extensores carpi, as long as the person keeps his fingers flexed he can extend with force his hand on the forearm. But if he should wish to extend his fingers his first phalanges remain immoveable and his hand is flexed on the forearm with as much energy as the efforts he makes to produce extension of the fingers. Sir William Gowers[14] in his work on "Diseases of the Nervous System" states in speaking of lead paralysis, in which the extensores digitorum are paralysed but not the extensores carpi, that "as long as the special extensors of the wrist retain power this joint can still be extended when the fingers are flexed so as to close the fist, although the wrist cannot be extended when the fingers are also extended. The reason for this seems to be physiological. When in health the hand and fingers are both extended the special extensors of the wrist act very little if at all; the movement at the wrist joint is effected by the long extensor of the fingers; if, however, the fingers are flexed the extension of the wrist is effected by the special extensors." So that, according to Duchenne, if a person with paralysis of the extensores digitorum tries to perform the movement of extending his fingers the only result he obtains is flexion of the wrist, and according to the extract just given a patient with paralysis of the extensores digitorum has no power to extend the wrist as long as he tries to do it with the fingers

[6] Loc. cit., § 216.
[7] Loc. cit., p. 315.
[8] Loc. cit., p. 316.
[9] Loc. cit., p. 157.
[10] Loc. cit., p. 209.
[11] Loc. cit., p. 157.
[12] Loc. cit., p. 149.
[13] Loc. cit., p. 160.
[14] Vol. ii., p. 949.

straight. These conditions are frequently met with in cases of lead paralysis.

Now, the problem which is before us and which has, so far as I know, never been explained is: Why do not the extensors of the wrist, which in this case are healthy, come to the rescue and help the paralysed extensors of the fingers to extend the wrist? They certainly do *not* contract and there must be some explanation of the inability of the person to make them do so. Now, let us observe what happens in the normal condition. With the fingers flexed so as to form a fist, if the wrist be required to be extended, the work is done by the three extensores carpi and their tendons at the wrist and especially the extensores carpi radialis longior and ulnaris can be felt to contract. If now in the course of this extension the fingers be suddenly extended, the extensors of the carpus immediately cease to contract and the work of extension is done by the extensors of the fingers. But the extensors of the fingers cannot act without at the same time causing the flexors of the wrist to contract and by putting one's thumb and finger on the tendons respectively of the extensor carpi radialis and the flexor carpi ulnaris it will be found that when the fingers are extended the extensor carpi can be felt to relax and the flexor carpi ulnaris to contract. The wrist can therefore be extended fully by the extensors of the fingers without the help of the extensors of the wrist, but as the extensors of the fingers have to do this against the contraction of the flexors of the wrist there is a feeling of constraint. Now what will happen if strong resistance be made to the extension of the wrist when this movement is performed by the extensors of the fingers, which are weak muscles; will the extensors of the wrist—so to say—come to the rescue and take part in the movement of extending the wrist? As a matter of observation I have found that they will come and help. But—and I think that this is a most important point and one which I believe has not been shown before—as long as the fingers remain extended, the extensors of the wrist will not help until a certain resistance has been reached and when this amount of resistance is reached the extensor tendons of the wrist can be felt to contract. On the other hand, if the extensors of the fingers retire from the contest and let he fingers flex, the extensors of the wrist instantly contract, no matter how slight the resistance may be. It therefore seemed to me important in extending the wrist by means of the extensors of the fingers to find out, first, the amount of resistance necessary to cause the extensores carpi to contract; and, secondly, the amount of resistance necessary to cause the flexores carpi to cease contracting. The experiment was made with the forearm placed on the flat surface of a table with the palm downwards and with the hand projecting beyond the edge of the table in a line with the forearm, with the fingers extended. Resistance was applied in one of two ways: in the one by passing a broad band over the extended fingers, taking care to keep it beyond or peripherally to the metacarpo-phalangeal joint and then to attach this band to a fixed point with a dynamometer interposed. Against this fixed point the person extended the wrist-joint while the finger of the observer was placed on the tendon of the extensor carpi radialis longior. The other method consisted of keeping the fingers extended and by means of an assistant increasing the traction on the hand until the tendon of the extensor carpi could be felt contracting. The latter was found to be the better method, as the wrist being fixed it was more easy to insure that other movements should not be made which would prevent the tendon being felt. The result of several examinations showed in my own case that the pressure of from three to four pounds was required to be applied to the extended fingers before the extensor carpi radialis longior could be felt to act.

It might be thought that the flexores carpi would cease to contract as soon as the extensores carpi took up the work. But this was not found to be the case, and in some cases more pressure was required, as much as 10 pounds having to be applied before the tendons of the flexores carpi relaxed. The relaxation of the flexors of the carpus is a much more difficult matter to determine, as in some trials they seemed to leave off contracting at once, while in others they were still contracting even with a pressure strong enough to overcome the resistance of the wrist. I think that the following is the explanation. If the fingers be actively extended to the full amount, or if they be quickly extended, the flexors of the wrist are felt to contract synergically and if in this condition pressure be made against extension of the wrist the flexors of the wrist will not relax; but if the extension of the fingers be made very slowly and not to the full degree the flexors of the wrist will hardly be felt to contract or very slightly and in that condition very little pressure against the extension of the wrist suffices to relax them altogether. It therefore appears that if the predominant idea is extension of the fingers, then the flexors of the wrist contract and remain contracted if this combination be required to take part in the superadded movement of extension of the wrist. Now if the movement of extension of the fingers is not made to the full extent and the superadded movement of extension of the wrist becomes the predominant one, the flexors of the wrist cease acting as soon as pressure is applied to the dorsum of the first phalanges, although the extensor communis digitorum is taking part in the movement and its tendons can be seen to stand out. I think that these experiments show that if the movement of extending the wrist be performed with the fingers extended, the extensors of the fingers have to do all the work themselves and against the contraction of the flexores carpi, until the amount of work done amounts, as in my own case, to three or four pounds, when the extensores carpi will join in and help them.

Now to apply this to what we find in lead paralysis. In paralysis of the extensors of the fingers due to lead, if the movement of extension of the wrist be started by that of attempting to extend the fingers, the extensores digitorum being paralysed cannot move at all and so cannot possibly reach the amount of three pounds which, as we have seen, is required for them to attain before the extensores carpi will come in and help them. The important point is that the patient has no power to make the extensors of the carpus contract and the only resulting movement is flexion of the wrist due to the synergic action of the flexores carpi. It rather reminds one of some highly organised establishments where, if one of the servants be incapacitated, it is no one's place to do the work which is consequently left undone.

Following on the results obtained from examining the action taken by the extensors of the fingers in extending the wrist I have examined the movement of flexion of the wrist to see the part taken in that movement by the flexors of the thumb and fingers. I have already mentioned that the flexors of the fingers take part in the flexion of the wrist and they do so very readily. It is also to be noted than when the flexores digitorum act as flexors of the wrist the synergic action of the extensores carpi does not occur. When, however, we cause the fingers and thumb to contract powerfully, as in grasping, and while this is occurring we flex the wrist, we get an entirely different condition.

Here we have taking part in the movement of grasping the flexors of the thumb and fingers and also the synergic action of the extensors of the wrist and the question is, what will happen if we now flex the wrist? Will the movement be done by the flexors of the fingers or will the flexors of the wrist come and help and, lastly, will the extensors of the wrist relax? It will be observed that if this movement be attempted while a strong grasp is maintained and also if the flexion of the wrist be made slowly there are a considerable feeling of strain and a certain amount of tremor due to the antagonism between the acting muscles. To determine the three above-mentioned points the following method was used: 1. It was first necessary to insure that the grasp of the hand was being maintained throughout the observation and this was done by means of a dynamometer which was grasped in the hand and the index of which could be watched, for I found that in flexing the wrist against resistance as soon as the grasp was relaxed the flexors of the wrist immediately contracted even in the slightest degree of flexion, and as I have already mentioned the whole experiment depended on the grasp being maintained. 2. The forearm was put in the position midway between supination and pronation and a band was passed round the metacarpal bones and either traction was made horizontally in the direction opposed to flexion of the wrist or flexion was made by the wrist against a fixed point; a spring balance was attached to the band and the amount of traction was read off at which the tendons of the flexors of the wrist were felt contracting and also the amount of traction required to make the tendon of the extensor carpi radialis relax. In my own case I found that the tendon of the palmaris longus could be felt first and when the balance measured three pounds,

whereas the tendons of the flexores carpi radialis and ulnaris were not felt till from five to six pounds of traction was made. On the other hand, the tendon of the extensor carpi radialis was not felt to relax till as much as from 14 to 16 pounds' traction had been made. The strained feeling would therefore be due to the antagonism between the extensors of the wrist and the flexors of the wrist. These experiments would seem to show that the combination between the extensores digitorum and flexores carpi and also between the flexores digitorum and extensores carpi is so strong that the muscles which flex and extend the wrist will oppose each other rather than sever their connexion with the finger muscles when the wrist is being extended or flexed in conjunction with extending the fingers or flexing the fingers and thumb.

While discussing the question of the action of the extensors of the wrist with the flexors of the fingers it will be advisable to say a few words about the nature of this combination. Duchenne calls attention to the definite association between the above-mentioned muscles, as well as that between the extensors of the fingers and flexors of the wrist, and that between the extensor ossis metacarpi pollicis and the extensor carpi ulnaris. He speaks[15] of the "moderating synergy," and he writes "that the synergic contraction of the flexors of the hand on the forearm is inseparable from the muscular function which ought to produce voluntary extension of the first digital phalanges. To place the common and special extensors of the fingers in the greatest elongation in order to augment their dynamical power: such is the useful end of this instinctive combination of the flexors of the hand during extension of the fingers." He refers to the over-extension of the wrist which occurs in extending the fingers when the flexors of the wrist are paralysed and the explanation which he gives is that "the common extensors of the fingers being up to a certain point at the same time extensors of the hand on the arm their contraction renders necessary the moderating synergy of the flexors of the wrist." One of the earliest mentions that I can find about a muscle passing over two or more joints is that of William Cowper[16] who in his Anatomy reproduces Bidloo's splendid anatomical plates. He gives various reasons why a muscle passes over two or more joints, but he does not mention that other muscles are brought into the movement. John Hunter[17] in his second Croonian lecture delivered before the Royal Society in 1777 was as far as I can ascertain the first to enunciate the doctrine of synergic muscles. He says: "Muscles often go over two, three, or four joints and only move the third and fourth, as the flexors of the last joints of the fingers; but to prevent the first and second joints being moved by this action the extensors of the intermediate joints are obliged to interfere and keep them bending." This I consider is really the use of these synergic muscles and although the flexors of the wrist do act in placing the extensors of the fingers in the greatest elongation in order to augment their dynamical power so that when the wrist is flexed to a right angle the grasp has about one-half the strength that it has when the hand is in a line with the forearm, yet that, I think, is not their object. For if the wrist be extended passively as far as it will go and if then the fingers be actively extended the flexor carpi ulnaris will still be felt to contract without remedying the position of the wrist-joint even though the extensors of the fingers are working at a great disadvantage. If the function of the flexors of the carpus was to put the extensors of the fingers in the most advantageous position they would flex the wrist and bring the hand into position in a line with the forearm. Their function appears to be to fix the wrist in whatever position it happens to be, so that the fingers will have a secure basis to work upon. Following the opinion stated above by John Hunter I think the condition may be stated thus: When a muscle by passing over two or more joints has two or more different actions, then, if only one of these actions is required, other muscles are brought into the movement whose actions are antagonistic to those of the muscles which are not required. In the above quoted case the extensors of the fingers by passing over the wrist are extensors of the wrist as well as extensors of the fingers, and as extension of the wrist is not required the antagonists to this action—viz., the flexors of the wrist—are brought into the movement and the resultant movement is extension of the fingers without extension of the wrist. This rule applies as far as I have been able to observe throughout the muscular system. These muscles which are brought into action to neutralise an action which is not required I should propose to call "synergic muscles"—a term used by Duchenne.

[15] Loc. cit., § 169.
[16] Myotomia Reformata, 1724.
[17] Loc. cit., p. 238.

LECTURE II.

Delivered on June 11th.

MR. PRESIDENT AND GENTLEMEN,—The next movements that we have to consider are those of the *radio-ulnar articulations*, pronation and supination. The muscles producing pronation are the pronator teres and pronator quadratus and if the resistance to the movement be applied to the hand, as it usually is, the flexor carpi radialis and palmaris longus contract. The pronator quadratus cannot be felt contracting, but it is one of the muscles the action of which must be inferred from its position. Supination is performed by the supinator brevis, biceps, and when the resistance is applied to the hand by the extensor carpi radialis longior and brevior and by the extensors of the thumb. The strongest supinator is the biceps and its action as such was described by Winslow.[18]

In the above list I have omitted the supinator longus, or as it is now called the brachio-radialis. This muscle has had a very chequered career at the hands of anatomists. According to Winslow it "was believed to be concerned only with supination till Mr. Heister observed that it was a flexor of the elbow-joint," and he adds, "before it can act as a supinator the hand must be in the greatest degree of pronation, and even then it can do little more than bring the radius back to its natural position." According to Duchenne[19] the supinator longus flexes and pronates the forearm if it is previously completely supinated into the mid-position of pronation and supination and its denomination of long supinator is inexact since the muscle exercises a contrary action. In the anatomical text-books at the present time the teaching is that the supinator longus pronates when the forearm is fully supinated and supinates when the forearm is fully pronated. In the midst of so much conflicting evidence it seems to me that the only way to settle the question is to go directly to nature and to examine what takes place in the living body. Ten years ago I published in *Brain*[20] an observation on this muscle and I came to the conclusion that while it took an active part in flexing the forearm, no action in it could be discerned in the movement of pronation and supination. I think now, however, that on extreme pronation and when considerable strength is used, there is some slight action at the end of this movement. This is a point which anyone can prove for himself by supinating or pronating the forearm against resistance, taking care that no flexion of the forearm occurs. I think it will be found that no contraction of the supinator longus will be seen except perhaps in strong pronation, but the moment that the slightest flexion is made the muscle instantly stands out in strong outline. I therefore conclude that the supinator longus, or the brachio-radialis as it would be better to call it, does not take part in supination and only in strong movements of pronation.

It is interesting to note that Duchenne[21] according to his electrical observations considered "that the biceps could not be put isolatedly into contraction without producing supination at the same time," and he cites a case where a person had lost the use of the brachialis anticus, supinatores longus et brevis, and the pronators, but not the biceps, with the result that he could not flex the forearm without supination owing to the atrophy of the pronators and from this he argues that we must conclude that the biceps only supinates during flexion of the forearm and he considers that it ought to be called the flexor supinator. He also seems to hold the opinion from this that simple supination is performed by the supinator brevis and simple pronation by the pronatores teres and quadratus, whereas the biceps, he considers, only takes part in flexion supination and the supinator longus in flexion pronation.[22] But what are the facts of the case? No doubt the biceps is a flexor as well as a supinator and yet if one examines one's biceps when the forearm is being supinated against resistance without flexion of the elbow, and this is

[18] Loc. cit., vol. i., Section III., No. 588.
[19] Loc. cit., p. 142.
[20] On Some Points in the Action of Muscles, Brain, vol. xiv.
[21] Loc. cit., §§ 146, 147.
[22] Loc. cit., p. 142.

a movement which everyone can perform, the biceps is found to be vigorously contracting and it certainly can act without flexion of the elbow. It was while examining this point that it suddenly occurred to me: Why does not the elbow flex in supinating the forearm when the biceps is contracting so strongly? There must be some opposing force to prevent flexion. We have here, in fact, an example of a muscle, the biceps, having two actions, supination and flexion, of which the latter is not required and therefore, according to the rule given in the first lecture, the antagonist to this flexor action must be brought into the movement. The antagonists to the flexors of the elbow are the extensors of the elbow. In other words, it is not possible to have strong pure supination without contraction of the triceps. If, however, while supinating, it be required to flex the elbow, the triceps at once ceases to contract. Further, if the triceps be paralysed the patient cannot supinate without flexing his elbow, because the flexor action of the biceps is not neutralised; and if the biceps be partially paralysed and weaker than the triceps, the elbow is extended during strong supination just as the wrist is over-extended in grasping when the flexors of the fingers are weak. It is also to be noted that apparently it is not the whole triceps which takes part equally in this movement, for of the three heads by which the triceps arises the outer and inner head contract more than the long head arising from the scapula. The probable reason for this is, as we shall see later, that the long head of the triceps is an adductor of the humerus; now the only counteraction required in this movement of supination is extension of the forearm and not adduction of the humerus, therefore the part of the triceps which performs this movement of adduction does not contract so readily. As we shall see later the pronator radii teres is also a flexor of the forearm on the arm as well as a pronator—though Winslow[23] states that it can have no action but pronation—and to neutralise its flexor action there is also contraction of the triceps but to a much less degree than in the case of supination in proportion as the flexor action of the pronator teres is much less than that of the biceps.

The movements of the elbow-joint are flexion and extension; the muscles which take part in flexion are the biceps, brachialis anticus, supinator longus, pronator radii teres, and when the hand is closed there is very slight action in the flexores carpi but none in the extensores carpi. In the above list the brachialis anticus is certainly a pure flexor of the forearm and as the supinator longus does not, according to my observations, take part in the movements of supination I look upon it as a flexor with slight pronator action. We have therefore the supinator longus and the pronator radii teres acting as flexor pronators and the biceps as a flexor supinator. Now, flexion of the forearm can be performed when it is in the position of extreme pronation or supination or in any position intermediate between these two, so that the muscles which pronate and supinate the forearm at the same time that they flex must be in equilibrium, but the opposing muscles are the supinator longus with the pronator radii teres as pronators and the biceps as supinator—muscles so different and unequal in strength that it does not seem possible that the former two can balance the biceps. I can only suggest, though I have not yet come across a case of isolated paralysis of the pronator quadratus, that this muscle may assist the pronator teres and supinator longus in neutralising the supinator action of the biceps in simple flexion of the elbow. The association of flexion or extension of the elbow with pronation or supination produces some interesting combinations: for instance, if while flexing the elbow the forearm be supinated the pronator radii teres, which was acting as a flexor of the elbow, seems to me to cease as soon as the movement of supination is performed, but, on the other hand, the biceps does not cease to act in flexing and pronating at the same time. Now what will be the action of the biceps if during supination the forearm be extended? Will it continue to act by virtue of its position as a supinator or will it cease when it takes part in the movement of extension to which its action of flexion is an antagonist? The answer is that the biceps contracts during the combined movements of extension of the elbow and supination of the forearm and therefore the action of the extensors of the elbow must be stronger than the flexor action of the biceps, otherwise there would be no extension.

[23] Loc. cit., § 889.

What part do the flexors and extensors of the carpus take in the movements of the elbow? According to Duchenne[24] the flexors of the wrist are auxiliaries of the flexors of the elbow and when these are weak the flexors of the wrist are put on the stretch by extending the wrist and can then assist to flex the elbow. My experience is that the action of the flexors and extensors of the carpus is exceedingly slight as flexors of the forearm on the upper arm. In cases which I have had where the supinator longus was absent and the biceps was very feeble the patients in flexing the elbow first pronated the forearm, the extensors of the wrist then contracted, hyper extending the wrist, and finally the elbow very slowly flexed. It was difficult in these cases to say whether the flexion was performed by the pronator teres and flexores carpi or by the pronator teres and the extensores carpi. William Cowper[25] expressed the opinion that the flexors of the carpus when they "act together, as they do when they bend the wrist, destroy each other's action on the elbow and have little or no effect on it." To ascertain the share taken by the flexors and extensors of the carpus in flexing the elbow I have tested the amount of work done by flexion of the elbow when the flexors of the wrist took part in the movement and when they did not. The trial was made first with the resisting band over the hand just above the heads of the metacarpal bones so as to include the carpal muscles, and on flexing the elbow the maximum amount of work was found to be about 40 pounds, whereas on placing the band over the lower end of the radius and ulna the amount went up to from 50 to 54 pounds. This increase is due to the shortening of the arm of the lever of the third power by transferring the weight from the hand to the lower end of the forearm. To obviate this the resistance band was applied to the lower end of the forearm with (1) the wrist tightly clenched and (2) the wrist lax. In several observations identical figures were given in the two cases; in one observation when the wrist muscles were used the force was two pounds more. The proportion of two in 50 is so small that the power of flexing the elbow by the muscles of the carpus is proportionally very slight and is almost a negligible quantity. The effect of shortening the arm of the lever is very well shown by putting the resisting band in the middle of the forearm when the amount of work done goes up to 70 or 80 pounds, as against 50 pounds when the band is over the lower end of the radius, and it is well exemplified by a person carrying a heavy basket by the handle on the bent arm, putting the handle as near to the elbow as possible.

The extensor carpi radialis longior, which arises from the lower third of the outer condyloid ridge of the humerus, has been considered to be a flexor of the elbow-joint, but when the wrist is lax I cannot find that there is any contraction of this muscle when strong flexion of the elbow with the forearm pronated is made against a resistance.

To determine the question of the relative strength of the flexors of the elbow in the various positions of supination and pronation of the forearm I have taken the maximum in myself when the forearm was completely pronated, when it was completely supinated, and when in the mid-position between the two. When fully pronated the amount was 40 pounds and in the other two 42 pounds, so that, as before said, in the position of pronation the supinating action of the biceps must be neutralised, as the flexor force is nearly the same in all three positions.

Extension of the elbow, or rather of the bones of the forearm on the humerus, is performed by the triceps and anconeus, and I am unable to find that the extensors of the wrist or fingers take any part in the movement

The movements of the humerus on the scapula are so involved with the movements of the scapula itself that it will be more convenient to take them together and afterwards those movements of the scapula which are performed without the participation of the humerus. The movements of the humerus are best described in terms of the planes corresponding to the three dimensions of space—viz., antero-posterior, latero-vertical, and horizontal. In the antero-posterior plane the humerus starting from the hanging position is advanced forwards, flexed as it is also called, to the horizontal line and thence it is elevated to the vertical position; on the return journey the humerus is depressed through 180° to the hanging position and thence it can be carried backwards or retracted. In

[24] Loc. cit., § 167.
[25] Loc. cit., p. xxvii.

the latero-vertical plane the humerus can be abducted to the horizontal line and thence to the vertical and on the return journey it is adducted through 180° to the hanging position. In the horizontal plane the humerus is horizontally adducted when it is moved towards the middle line and horizontally abducted when moved away from the middle line to the lateral plane, behind which it is horizontally retracted. Besides the above movements there is rotation in and out. In advancing the humerus the anterior fibres of the deltoid, the clavicular fibres of the pectoralis major, the biceps, and probably the coraco-brachialis, contract and carry the humerus forward, nearly to the horizontal line. This action tends to rotate the scapula with the acromion downwards and to push its inferior angle towards the spinal column, but this is prevented by the contraction of the acromial fibres of the trapezius—which Duchenne showed to be the fibres taking part in this movement and not the clavicular fibres—and it is also prevented, as I consider, by the contraction of the inferior fibres of the trapezius. As shown by Duchenne the deltoid and the other muscles cannot carry the humerus further than the horizontal line. After passing through 45° the serratus magnus comes to their assistance and draws the lower end of the scapula forwards, raises the acromion with the humerus and thus the arm is elevated to the vertical position. Now the serratus magnus is considered to fix the lower end of the scapula at the beginning of this movement, but I have seen cases in the last few years which seem to negative this idea. The first case which drew my attention to this point was that of a girl who had wasting of the lower part of the trapezius, below a line drawn horizontally from the spine of the scapula to the vertebral column. The rest of the trapezius acted well and the serratus magnus was not affected, which was well shown by the patient being able to push forward with the advanced arm against resistance. On telling the patient to advance the arm slowly I observed that the first action on the scapula was to rotate it so that the inferior angle moved half an inch towards the vertebral column and the posterior border of the scapula projected like a wing; this projection reached its maximum when the humerus was advanced through about 45°. Then the serratus magnus contracted and as it drew the lower end of the scapula forwards the deformity diminished and finally disappeared. The explanation that I would offer for this occurrence, which does not happen with normal muscles, is that though the serratus magnus is mechanically in the position to fix the scapula and to prevent its lower angle from being rotated towards the vertebral column, it is not its function, when the movement is one of advancing the shoulder, to act on the scapula until the humerus has been moved by the deltoid through about 45°. The inferior part of the trapezius apparently is the proper muscle to fix the scapula in advancing the humerus and when these inferior fibres are paralysed the serratus will not step into the breach, so to say, and do the work for the trapezius, which consequently is not done at all. I think that this is another instance of what I described in the previous lecture in the case of paralysis of the extensors of the fingers due to lead poisoning and the inability of the extensors of the wrist to help the extensors of the fingers until the latter experience a given degree of resistance. I consider that in a movement such as advancing of the humerus certain muscles are told off to come into action at a certain period of the movement and not before. [A case (under the care of Dr. Ormerod) with paralysis of the inferior fibres of the trapezius was shown to illustrate this movement of the scapula.]

I have lately had the opportunity of examining a case under the care of my colleague, Dr. James Collier, where the whole trapezius had wasted and practically disappeared from a lesion of the spinal accessory nerve in the neck, with the result that at rest the scapula was half an inch lower than on the other side and the acromion was rotated downwards and forwards so that the base of the scapular spine was two inches further away and the inferior angle was half an inch further away from the vertebral column than on the other side. On making this patient abduct or advance the humerus it was seen that the inferior angle moved inwards or backwards for half an inch and when the movement of the arm was resisted for as much as an inch, until the humerus had moved through an angle of 45°, when the inferior angle of the scapula was drawn forwards by the serratus magnus, the deformity disappeared, and the humerus was powerfully carried upwards to the vertical position. In this case, as the trapezius was the only muscle paralysed, the deformity and backward movement of the scapula must be due to its absence and the only conclusion that we can draw is that although the serratus magnus is in the anatomical position to be able to act, and is generally supposed[26] to fix the scapula, the will has apparently no power to make it act before its appointed time and to take the place of the paralysed trapezius. Whether it would be possible to educate the serratus and by practice to induce it to contract sooner I am not in a position to state, but if the condition may be taken as the same as that of paralysis of the extensors of the fingers in lead paralysis I should think it doubtful.

What determines the period at which the serratus begins to act it is difficult to say, but it seems to have some relation to the angle which the humerus makes with the scapula or to the degree of contraction of the deltoid and the tension it produces on the scapula. Normally in advancing the arm the scapula hardly moves at all till the humerus makes an angle of about 45° and then the inferior angle begins to move outwards by the commencing action of the serratus and when the humerus is horizontal the angle with the scapula remains constant and the elevation of the humerus to the vertical position is completed by the serratus. If, however, the deltoid is paralysed or the shoulder is fixed the serratus begins to act at once and the scapula moves outwards at once; so much so that this movement of the scapula is a diagnostic sign of one of the two above conditions. Now it is quite easy to imitate normally this movement by rotating the inferior angle of the scapula forwards and the acromion upwards without first moving the humerus, but in none of these conditions is the movement imitated by the action of the deltoid and there is no displacement of the inferior angle of the scapula backwards or towards the spine.

Another point of interest, occurring incidentally, is that the projection or winging of the scapula may be caused by paralysis of the trapezius and especially of its lower fibres, as well as by the well-known paralysis of the serratus magnus. The difference between the two conditions is that the deformity due to the absence of the trapezius is less than that of the serratus, the scapula projecting only half an inch, and that it reaches its maximum when the humerus is advanced through 45°, after which the deformity diminishes and disappears when the humerus is horizontal; moreover, the humerus can be elevated to the vertical position. With paralysis of the serratus magnus the deformity increases as the arm is advanced and reaches its maximum when the humerus is horizontal, beyond which level there is no muscular power to raise it. The diagnosis of paralysis of the serratus is also confirmed by the ease with which the scapula can be displaced backward by pushing against the advanced arm, which is not the case with the trapezius paralysis.

The action of the upper fibres of the pectoralis major in advancing the arm is important and was described by Winslow.[27] It is an action which does not appear in some people until the arm is advanced in a plane nearer to the middle line than the antero-posterior plane. The description just given of advancing the humerus applies equally well to the movement of abducting the humerus, with the exception that the middle part of the deltoid and the supraspinatus abduct the humerus, and the pectoralis major does not act, but the same conditions are met with in regard to the movements of the scapula and its relation to the trapezius and serratus as in the movement of advancing the humerus. Advancing and abduction of the shoulder are also attended by contraction of the erectores spinæ, a subject which will be discussed when the muscles of the trunk are considered. Depression of the humerus in the antero-posterior plane from the vertical position above the head through 180° is performed by the sternal fibres of the pectoralis major, the pectoralis minor, the latissimus dorsi, the teres major, the teres minor, the infraspinatus, and by the long head of the triceps, and perhaps by the subscapularis. The superior or clavicular fibres of the pectoralis major are not from my observations depressors of the humerus and I cannot agree with Duchenne[28] that these fibres are at the same time depressors and elevators of the humerus according to the position of the limb—i.e., depressors only from the

[26] See Duchenne, loc. cit., p. 115.
[27] Loc. cit., No. 836.
[28] Loc. cit., § 193.

vertical to the horizontal line—and that they are, as Duchenne gracefully describes, the agent used equally by the enemy to strike with a sword or by the priest to bless the faithful. I cannot discover that the upper fibres contract at all in forcibly depressing the humerus in any position and I was interested to find, what I was not aware of, that Winslow[29] states that the superior fibres serve chiefly to raise the arm forward. Duchenne's opinion was evidently founded on the fact that if the humerus be elevated vertically and the superior fibres be stimulated electrically they will depress the humerus to the horizontal line, but according to my observations they do not contract voluntarily to depress the humerus, and although they are in the anatomical position to depress the humerus they are not included in the group of muscles told off to perform this movement.

Of the other muscles depressing the humerus I would refer to the long head of the triceps. Now, as this muscle cannot contract without extending the elbow there is also, if only pure adduction be required, slight synergic action on the part of the biceps and supinator longus to neutralise the extensor action of the triceps. This action of the long head of the triceps is very well seen in cases—of which I have one under my care at the present time at the National Hospital for the Paralysed and Epileptic—where the triceps is unaffected, while the flexors of the elbow are paralysed. Here every time the patient depresses or adducts the humerus the elbow is extended by the unopposed long head of the triceps.

Retraction of the hanging humerus posteriorly to the vertical line is performed in addition to the latissimus dorsi and teres muscles by the posterior half of the deltoid. The pectoralis minor takes part in the movement but not, I believe, the pectoralis major, so this movement is a means of separating the action of these two muscles.

Adduction of the humerus is performed by the same muscles as take part in depressing the humerus, with the addition that both parts of the pectoralis major, and also the posterior fibres of the deltoid, act as adductors, as Winslow[30] pointed out. According to Duchenne[31] "electrical experiment shows that the posterior third of the deltoid acts synergically with the other fibres of the same muscle to elevate the humerus through an angle of 45°, but above this point the posterior fibres become depressors of the humerus and antagonists to the other fibres until it has descended to that point of elevation which results from the contraction of the posterior bundle." "This," he says, "justifies the opinion of Bichat,[32] contested by many anatomists, that the deltoid can be at the same time both elevator and depressor of the humerus." My observations would make me join the ranks of the contestors of this opinion, as I cannot find that the posterior fibres of the deltoid take any part in elevation of the humerus and they are in my opinion adductors. On this question I would again like to point out that because a muscle can produce two opposite movements when stimulated by faradisation we cannot be certain from this that this muscle performs these two opposite movements when acted on by the will. We have first to prove that the muscle is actually contracting in each of these opposite conditions, for it does not follow that because a muscle is in the anatomical position to take part in a movement therefore it *must* do so.

In both movements of depressing the humerus and adducting it the scapula has to be fixed by the rhomboids and the lowest fibres of the trapezius, so that when the former are absent the inferior angle of the scapula is drawn into the axilla by the teres muscles, as was first pointed out by Erb, and when the lowest fibres of the trapezius are absent the scapula is lifted upwards by the rhomboid and the teres muscles. The contraction of the rhomboid is, however, stronger than that of the trapezius and in some cases the latter appears not to act in adduction. Conversely, when the adductors are weak and the rhomboid is normal it carries the inferior angle of the scapula to the spine in adducting the humerus. The pectoralis minor also fixes the scapula in depressing the humerus, and when it is absent, as I have lately seen in a case, the scapula is elevated and the coracoid process projects under the skin.

In depression and in adduction of the humerus from the horizontal line there is contraction of the abdominal muscles, as was pointed out by Winslow,[33] and especially of the rectus abdominis and obliquus externus, which fix the ribs and prevents them being drawn up by the pectoralis major. In depression I have found that the recti of both sides act, but those of the same side much more than those of the opposite side, while in adduction the rectus of the same side only contracts but in addition the erector spinæ of the same side takes part. The question is whether the abdominal muscles are essential for the performance of the movements or whether it is possible to perform them without coöperation of these muscles. I have therefore ascertained the amount of work that is required to be done before the rectus abdominis contracts in the movement of depressing or adducting the upper limb from the horizontal line. I find that the amount is exceedingly small and that in the erect position, with the arm in the horizontal position, the rectus abdominis could be felt to contract when the scale only registered from 4 to 7 pounds, and as this includes the dead weight of the arm, which was found to be 2½ pounds, the actual work done by the muscles was from 1½ to 4½ pounds, and this small amount was sufficient to bring in the fixing action of the rectus abdominis. The smallness of this amount is further shown when compared with the maximum amount of force which can be produced by this movement. In my case it was 30 pounds, so that the earliest contraction of the rectus abdominis occurred when only about one-fifteenth of the maximum strength had been used. It therefore occurs not at the end of a strong movement, but so early that the movement can hardly take place without it. As this action of the rectus takes place equally well in standing, sitting, or lying down its participation is not necessary for maintaining a certain position and therefore I think it must be included in the list of muscles which are essential for the movement of depression and adduction of the humerus.

The movement of horizontal adduction which takes place when the advanced humerus is drawn horizontally to the median line is carried out by the anterior fibres of the deltoid, the coraco-brachialis, and by the pectoralis major; where there is no resistance by the upper fibres only, but where an obstacle is to be overcome both parts of this muscle act.

I would here say a few words about the pectoralis major, one of the most interesting muscles of the body. The pectoralis major is a muscle consisting of two parts, clavicular and costo-sternal, which can either act in unison or in antagonism. The best way to bring out the actions of the two parts working together is passively to advance the upper arm to the horizontal line and then to tell the patient to carry his hand towards the middle line against resistance. If he then raises his hand upwards against resistance the upper fibres alone contract and if he depresses his hand the lower fibres alone contract. In fact, as Winslow said, the pectoralis major may be looked upon as two distinct muscles, and I have published[34] cases of complete absence of the lower fibres due to infantile paralysis with perfect preservation of the upper fibres. Associated with the loss of the lower pectoral fibres there was complete paralysis of the latissimus dorsi and triceps. In horizontal abduction the different fibres of the middle part of the deltoid successively come into action from before back until the posterior fibres act, together with the latissimus dorsi, teres muscles and subscapularis. Associated with horizontal abduction of the humerus is the fixation of the scapula by the trapezius in which all but the clavicular and acromial fibres take part. This is the best movement to bring out the trapezius and particularly the middle part which it is often very difficult to make out. For this purpose the upper limb is put in the horizontally advanced position parallel to the middle line and it is then passively pushed backwards so as to make the posterior edge of the scapula visible. If now the patient be directed to abduct the humerus horizontally against resistance, the fibres of the trapezius and especially those inserted into the spine of the scapula are well seen against the sharp edge of the posterior border of the scapula and they have a direction almost horizontal and not so oblique downwards and outwards as the fibres of the rhomboideus minor, with which they might be confounded.

Of the rotators of the humerus the rotators in are the pectoralis major, both parts, deltoid (anterior fibres), teres major, latissimus dorsi, and probably the subscapularis. I have nothing to add to the muscles usually included as rotators out—viz., teres minor, infraspinatus, and deltoid (posterior fibres)—except to point out that in rotation

[29] Loc. cit., No. 836.
[30] Loc. cit., p. 288.
[31] Loc. cit., p. 60.
[32] Anatomie Descriptive, p. 226, Paris, 1846.
[33] Loc. cit., Section III., p. 290.
[34] Transactions of the Royal Medical and Chirurgical Society, 1885.

in when the humerus is horizontal, the rhomboid chiefly acts to fix the scapula and in rotation out the lowest fibres of the trapezius perform this function. Consequently in paralysis of the trapezius there is great displacement of the scapula in rotation out of the humerus but not with rotation in.

The scapula has also movements which are independent of those of the humerus—viz., elevation, depression, advancing, retraction, and rotation with the acromion upwards which has already been described. Elevation is performed by the trapezius and especially by the acromial fibres, though the clavicular do also contract in some patients though apparently not in all, and by the levator anguli scapulæ. According to Duchenne[35] the inferior part of the serratus magnus is an elevator of the shoulder as shown by electrical faradisation, and upon being stimulated the serratus first rotates the scapula with the acromion upwards and then elevates it. Nevertheless, Duchenne states that when he made a person elevate the shoulder and he applied strong resistance to its point, he found that the trapezius, rhomboid, and the upper part of the pectoralis major alone contracted but not the serratus magnus. Yet as soon as the patient raised his arm the muscle contracted at once. He explains that the reason why the serratus magnus does not act is probably because its contraction would interfere with respiration in keeping elevated the ribs on which it takes its origin. I venture to think that the will has not the power to leave a muscle out of a group if it is included in it, even if it interferes with respiration, and that the explanation is rather to be found in the fact that the serratus magnus is not an elevator of the shoulder and also that the electrical results are not to be relied upon unless they are corroborated by voluntary movements. I also think that Duchenne is not distinguishing between the two different movements of (1) elevation of the acromion where the scapula is rotated by the serratus magnus and (2) elevation of the whole scapula as in shrugging the shoulders where the serratus magnus does not act.

I have nothing special to remark about the other movements of the scapula except that the levator anguli scapulæ sometimes takes part with the serratus magnus in advancing the scapula and perhaps it counteracts the rotation of the scapula, with the acromion upwards, by the serratus magnus.

With regard to movements of the spinal column, the chief movements of the lumbar spine are flexion and extension, lateral flexion to either side, and rotation to either side. The flexors of the spine are best tested when the person is lying down. The chief of them are the recti abdominis with the pyramidales and also the external obliques, but whether the internal obliques also take part I have had no means of ascertaining. In testing the action of the recti abdominis the person lies flat on his back and crosses the arms on the chest and the thighs are then fixed by passive pressure. It is then often sufficient for the person to bend the head forwards for the recti to tighten up sufficiently to be felt. The complete movement of sitting up from the recumbent position consists of two stages. In the first the sternum is approximated to the pubes by the recti abdominis flexing the lumbar spine and then the pelvis with the spine is flexed on the femora by the psoas and iliacus and other flexor muscles. It is often important to know, especially in cases of tumour of the spinal cord, if any part of the recti abdominis are paralysed as they are long muscles which are supplied from the sixth to the twelfth dorsal nerves. I observed some years back a symptom which enables the observer to tell if there is any weakness of the upper or lower parts of the recti. This symptom is the movement of the umbilicus. In health in the movement of sitting up the umbilicus does not alter its position, but if from a lesion of the lower part of the cord or its nerves the part of the recti below the umbilicus is paralysed the normal upper part of the recti draws up the umbilicus sometimes to the extent of an inch. As the abdominal wall at the level of the umbilicus is supplied by the tenth dorsal root any marked elevation of the umbilicus in the act of sitting up would show a lesion between the tenth and twelfth dorsal segments of the cord or the roots coming off from them. In the case where I first observed this symptom there was a malignant growth involving the cord at the level of the eleventh and twelfth dorsal roots. In two cases—one a myopathy and the other a case under the care of my colleague, Dr. J. A. Ormerod—I have seen the umbilicus drawn downwards, due, I have no doubt, to weakness of the part of the recti situated above the umbilicus. In cases where the recti abdominis are completely paralysed, as in one case of myopathy which I have seen, the patient cannot approximate the ensiform cartilage to the pubes, and he has first to fix the spine by the erectores spinæ and then to flex the pelvis on the femora and to draw the spine with the abdomen convex forwards by the psoas and iliacus, the flexor muscles of the hips.

The extensors of the spine are the erectores spinæ which can be well felt at their origin on either side of the lumbar spine but whose divisions into ilio-costalis and longissimus dorsi I do not think that it is possible to make out. The action of these muscles can best be made out by making a person, while lying down prone on a bed, lift up the neck and the upper part of the trunk when the muscles can be felt and seen on either side of the lumbar spinal column, or by making the patient extend the spine from the position of bending forwards either in the standing or sitting position.

In connexion with the actions of the flexors and extensors of the lumbar spine are the muscular movements which regulate and maintain the erect posture. In the erect posture—i.e., standing with the feet together in the position of attention—the muscles have to be continually counteracting the influence of gravity, and although when work is being done, as in pushing forwards against an obstacle or as in keeping a door shut, the flexors of the spine act, yet when a person bends forward from the erect position without having to overcome an obstacle it is not the flexors of the spine which act but the extensors, and conversely in extending the spine, as in leaning backwards from the erect position, it is not the extensors of the spine which act but the flexors. This condition has been, I venture to submit, much overlooked in books of general anatomy and also in special books on anatomy for artists. In the one by the late Mr. John Marshall[36] I cannot find any allusion to this point and in a recent similar work[37] the following passages occur on p. 37: "This bulging of the muscles on either side is particularly noticeable when these muscles (erectores spinæ) are in a powerful state of contraction as when a person ..... is bending backwards." And again, on p. 121: "If the figure be bent backwards the median furrow is deepened and the erectores spinæ are rendered more prominent owing to the fact that they are now in a powerful state of contraction." If in the above description the movement of bending backwards starts from the erect posture and is not made against resistance I should not be able to agree with it. Merkel[38] also states that in bending forwards the groove in the middle of the back disappears and the vertebral spines become visible and the back becomes smooth and round; in bending the body backwards the long back muscles become very tense and appear in the lumbar region as thick swellings. On bending to the side (presumably without effort) the long back muscles of the bent side form a stronger projecting swelling than those on the stretched side. On the other hand, according to the late Mr. W. Adams,[39] the muscles of the spine are in a state of least action when the spinal column is in the erect position. Instead, therefore, of the muscles of the spine in this position being in a state of active tension it is more correct to describe them as in a state of vigilant repose; as soon as the equilibrium is disturbed and the body is inclined to one side the spinal muscles on the convexity of the curve are put on the stretch. Richer[40] also states that on bending forwards the extensors come into action and on bending backwards the flexors of the spine, so that the action is somewhat of a paradox.

But we must go further back to find similar opinions expressed by Winslow,[41] who stated that "the musculi recti serve to support the trunk of the body when inclined backwards . . . for when we stand straight they have no hand in bending the body forward, except we be striving to overcome some resistance." And going further back still we find that Galen[42] in describing his fourth movement of muscles refers to the contraction of a muscle where there is no movement as in the case of maintaining the advanced arm in that position against gravity, so that he evidently recognised that the behaviour of a muscle is different according to whether gravity has to be overcome or not.

[35] Loc. cit., p. 30.

[36] Anatomy for Artists.

[37] Anatomy for Art Students, by Professor Arthur Thomson, second edition, 1899.

[38] Topographische Anatomie, Zweiter Band, 1896, p. 185.

[39] Curvature of the Spine, second edition, p. 41.

[40] Anatomie Artistique, 1890.

[41] Loc. cit., p. 171.

[42] Loc. cit., Part VII., Book 2, p. 339.

I should certainly agree with the opinion expressed above by Mr. Adams that in the erect position there is a state of least action of the muscles as very little action is to be felt in the erectores spinæ or in the recti abdominis, but by producing a forward movement of the trunk, as by bending the head forward so as to displace the centre of gravity, the erectores spinæ instantly contract and prevent the trunk from moving further in the direction of flexion, whilst the flexors of the recti abdominis relax. In the same way by extending the head backwards the centre of gravity is displaced backwards and the recti abdominis contract and check any further movement in a backward direction, whilst the erectores spinæ are relaxed. But if it be desired to bend the trunk gradually forward the contracted erectores gradually relax and let out the weight of the trunk in the same way as a heavy weight is slowly lowered to the ground by a crane. This action of these muscles can best be illustrated by the upper limb. If when the upper limb is in the horizontal position the forearm be slowly flexed on the upper arm in the vertical plane the flexors of the elbow contract until the forearm is just past the vertical line, when they cease to act and become quite flaccid while the triceps then contracts and lets the forearm gently flex on the upper arm. Conversely, if in that position the forearm be slowly extended the triceps contracts until just past the vertical line, when it ceases and then the biceps and the other flexors contract and let the forearm be gradually extended. So that in flexing the forearm in the horizontal position the first half of the movement against gravity is done by the flexors and the second half with gravity by the extensors. This applies to all the muscles of the body and it may be expressed thus: In every slow movement which is made in the direction of gravity the muscles which act in the direction of the movement are relaxed while their antagonists contract and support the part and if the movement is continued they gradually relax to their full extent.

The contraction of the erectores spinæ when the body falls forward occurs automatically and apparently without any effort of the will and it can be demonstrated by leaning forwards, supporting the weight of the body on one hand. On suddenly taking the supporting hand away the body falls forward and the erectores spinæ instantly contract. The contraction is an instinctive preservative action performed automatically and it takes place unless a voluntary effort is made to inhibit the contraction, when it can be prevented from acting.

In lateral flexion to one side where an obstacle has to be overcome the rectus abdominis and erector spinæ of that side can be felt to contract together with the external oblique and probably the quadratus lumborum, but in inclining the trunk to one side in the direction of gravity where no obstacle has to be overcome the muscles of that side are relaxed and the muscles on the opposite side—the antagonists—contract, just in the same manner as the erectores spinæ contract in flexing the spine forwards.

In rotation of the spine to the right the left external oblique acts, but neither the erector spinæ nor the rectus abdominis can be felt to contract, but whether the internal oblique of the same side (right) contracts it is difficult to say.

While speaking about the movements of advancing or abducting the humerus it was stated that these were attended by contraction of the erector spinæ. This is a point to which attention has been directed by Dr. J. Hughlings Jackson.[43] When a person stands erect so that there is no contraction of the erectores spinæ and then advances one upper limb with or without a weight in the hand to the horizontal line both erectores spinæ contract, and if the advanced arm be slowly carried outwards through an angle of about 45° the erector spinæ on the same side as the advanced arm ceases to contract and on the arm being carried through another 45° the rectus abdominis of the opposite side will be felt to take part in the movement. The question arises whether this contraction of the erectores spinæ is an essential part of the movement of advancing the shoulder in the same way as the right abdominal muscles take part in depressing or adducting the humerus—i.e., whether it is possible to advance the humerus without bringing the back muscles into action. I think the matter can be proved in the following way:—If when the arm is advanced and the erectores spinæ are felt contracting the spine be extended the erectors will be felt to relax when the weight of the trunk behind the centre of gravity just balances the weight of the advanced arm in front, and if now the arm be dropped and then advanced again no fresh contraction of the erectores will be felt. I think that this shows that the contraction of the erectores is not an essential part of the movement of advancing the humerus, as it does not always occur but is of the nature of a postural contraction and only takes place to prevent the equilibrium of the trunk from being disturbed.

This point, whether the erector spinæ muscle of, say, the left side is an essential component of the movement of abducting the right arm, is interesting in relation to hemiplegia. In right hemiplegia where a patient has lost the power of abducting the right arm the question arises as to whether he has any paralysis of the left erector spinæ which, as we have seen, acts when the right arm is abducted. If the action of the erector spinæ were an essential component of this movement of the arm one would expect that when the movement of the arm was paralysed all the components of this movement would also be paralysed, including the erector spinæ, but if the action of the erector spinæ were not an essential component but only acted to preserve the equilibrium of the spine then we should not expect it to be paralysed. I have not examined a sufficient number of cases to say whether the left erector spinæ is paralysed or weakened in right hemiplegia, but Dr. Hughlings Jackson[44] has expressed the opinion that in some cases of hemiplegia the erector spinæ on the side opposite to the paralysis is weaker than on the other side—i.e., in right hemiplegia the left erector spinæ is the weaker—and that the muscle is probably supplied by the direct (ventral) pyramidal tract.

[43] Brit. Med. Jour., March 5th, 1892.

[44] Ibid.

INTUBATION IN CASES OF DIPHTHERITIC LARYNGITIS.

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THE following remarks are based upon an experience of 33 cases of diphtheria of the larynx in which intubation was performed admitted to the Hospital for Sick Children, Great Ormond-street, under the care of Dr. A. F. Voelcker, to whom my thanks are due for permission to publish these cases and for his generous assistance. Since the introduction of antitoxin in the treatment of diphtheria statistics of cases of intubation have been almost entirely absent from medical literature in this country. Mr. T. H. Kellock[1] in 1896 published five successful cases and Dr. Conrad Basan[2] in 1901 reported 40 cases, of which only seven were fatal. Dr. Basan's cases seem to have been selected, certain cases being considered unsuitable for treatment by intubation. In the present series of cases nine were fatal—i.e., a percentage mortality of a little over 27. At the Hospital for Sick Children, Great Ormond-street, the practice is to intubate all cases of laryngeal diphtheria in which the signs of obstruction are sufficiently severe to call for immediate relief by operation. Primary tracheotomy is only performed in the few cases in which attempts at intubation prove unsuccessful through inexperience on the part of the operator. An analysis of my fatal cases will show that the list includes more than one hopeless case. Taking Mr. Kellock's, Dr. Basan's, and my own series we have, in all, 78 cases of intubation associated with antitoxin treatment, with a percentage recovery of 76·9. In Allbutt's "System of Medicine"[3] Dr. W. P. Herringham quotes 32 cases of tracheotomy in which antitoxin was also made use of, with a percentage recovery of 81·25; Dr. G. Thornton[4] gives 151 cases with a recovery rate of 67·6 per cent.; and Professor E. Roux[5] mentions 121 cases with a percentage recovery of 62·8. If one may judge from such small numbers intubation would seem to give results as good as, if not better than, those of tracheotomy, and this without any wound in the neck being made. Many writers on this subject have stated that the greater the experience of

[1] THE LANCET, Oct. 3rd, 1896, p. 933.
[2] THE LANCET, July 13th, 1901, p. 76.
[3] Vol. i., p. 758.
[4] THE LANCET, July 8th, 1899, p. 79.
[5] THE LANCET, Sept. 22nd, 1894, p. 675.

the operator the better will be his results; and this is certainly my own experience, as the last 15 of my patients recovered. It has been stated that intubation should be performed before tracheotomy becomes justifiable. The two operations might almost be reversed in this statement. Intubation can be performed so rapidly and without an anæsthetic that it can safely be postponed till an operation of some sort becomes imperative. In cases of laryngeal obstruction complicated by pneumonia when there is some difficulty in determining the part played by the two affections in the production of the dyspnœa intubation possesses obvious advantages over tracheotomy.

Operation.—The operation of intubation has been described as easy and so it is after a little practice. Experience must be gained in the living subject, practice on the cadaver being of limited value only. In a case with marked œdema glottidis, when the tip of the tube has to be squeezed into the larynx by steady but elastic pressure, the operation is by no means easy to the beginner. At the Hospital for Children, Great Ormond-street, the operation is performed with the child lying in bed, with the object of disturbing as little as possible the absolute rest in the recumbent posture so essential in cases of diphtheria. As a preliminary the child's arms should be encased in a piece of thin cardboard rolled into the form of a tube, lined with wool and fixed with a bandage. This simple splint, which should extend from the axilla to a point just above the wrist, effectually prevents the child from reaching the mouth and pulling out the tube, while allowing toys and books to be handled with ease. After the child has been wrapped in a blanket, with the arms by the sides, the head may be slightly extended over a small pillow placed behind the neck; this enables the mouth to be freely opened, even when the child in his struggles endeavours to bury his chin in his chest. The assistant, standing on the left side of the bed, steadies the gag, which is placed on the left side of the mouth, with the left hand while the right is placed on the child's forehead. Practice enables one to intubate with the mouth, less widely opened than was found necessary in one's early cases. The opening of the gag often causes an increase of the dyspnœa and, according to Dr. G. Hunter Mackenzie,[6] may even cause death. Dr. Basan in his interesting paper mentions a case in which the opening of the gag led to the immediate performance of tracheotomy which failed to save the child. The gag should always be closed or removed between the attempts to introduce the tube. The tube, previously sterilised, should be warmed by dipping it in warm boric acid lotion and then smeared with white vaseline or some other lubricant. The method of introducing the tube with the left forefinger acting as a guide is described in most of the text-books on diseases of the throat and need not be detailed here. In experienced hands the operation is practically free from danger, though death may occur from syncope, as the following unfortunate case shows.

CASE 1.—A girl, aged three years, was admitted with considerable dyspnœa, stridor, and recession of the lower part of the thorax. Antitoxin was administered and a steam kettle and half-tent were ordered. After a few hours, as no relief was obtained and the child's distress was increasing, it was decided to perform intubation. Two unsuccessful attempts were made by a colleague to introduce the tube. After the first the cyanosis had much increased but the child rapidly recovered on closing the gag. After the second attempt the child was nearly black and stopped breathing. I then introduced the tube and commenced artificial respiration. Air could be heard entering through the tube, but the child rapidly paled and died in spite of subcutaneous injections of strychnine and brandy.

This was not a case of pushing membrane down in front of the tube as air passed freely. The child was unable to stand the brief asphyxia induced by the operation. The diphtherial infection in this case was of a severe type, as was evidenced by two other members of the family, who were affected with the disease about the same time, displaying dangerous symptoms which in one case proved fatal. It would seem that all unnecessary manipulations were better avoided in a patient who exhibits signs of a severe type of the disease. Cases of death during the operation are mentioned by Dr. J. B. Ball[7] and Dr. H. G. Turney.[8] The impediments to intubation are great œdema, excessively thick membrane, and spasm of the glottis. The last gives way, as Dr. Basan says, on inspiration if the tube is kept applied to the glottis. In a case of œdema it may be found useful to slip the tip of the left forefinger behind the arytenoids and so to hold the tube against the posterior surface of the epiglottis to make sure that what little force is used is in the right direction. Dr. W. P. Northrup[9] mentions two difficulties in intubation: (1) the point of the tube entering the ventricle of the larynx, and (2) subglottic stenosis, meaning œdema of the mucous membrane in the region of the cricoid ring. The former should not occur and the latter is easily overcome if a suitable tube has been chosen. The same writer advises care in removing the introducer and obturator. The operator must keep these in the middline or the obturator will catch and perhaps drag out the tube. The tip of the left forefinger should steady the tube meanwhile and should then push the tube home into the larynx. The epiglottis should be felt to flap over and partially to cover the top of the tube, otherwise the latter will be coughed out immediately. The tubular character of the violent respiration following successful intubation is unmistakeable. In its absence the tube may be pulled at once from the œsophagus into which it has certainly passed.

Size of tube.—The sizes recommended by Dr. O'Dwyer for the different years are rather small and easily coughed out. Some continental surgeons who have visited this hospital have agreed with me in this view. In this series of cases, tubes were used suitable, according to the gauge, for children from six months to two years older than the patients operated upon. The bigger the child the bigger, relatively, should the tube be. The size of the child should be considered rather than his actual age. The male larynx is slightly larger than the female of equal age. Mr. Kellock suggests that the larger the tube used the less the mobility thereof and therefore the smaller the chance of ulceration. Dr. O'Dwyer[10] recommends the use of small tubes in cases with extensive formation of membrane, so that tube and membrane may easily be coughed out together. If too large a tube be used it may irritate the larynx and set up a reflex cough. This apparently happened in a hydrocephalic child whose persistent cough was rapidly relieved by the substitution of a smaller tube. This tube was afterwards coughed out once.

The string.—Although most writers on this subject recommend that the string, which should always be attached to the tube during the operation, should be removed after a few minutes if the child seems to be comfortable and relieved of dyspnœa, I strongly advocate its retention as long as the tube is in the larynx. In all my cases the thread was left attached to the tube, brought out of the corner of the mouth, and fixed to the cheek with a piece of strapping. Two objections are urged against the permanent use of a string. First, that it is a source of worry to the patient; this is, I think, exaggerated; children rapidly get used to it. In only one of my cases was there any trouble from the child biting through the string (*vide* Case 4). Secondly, that it may give rise to a *thread ulcer* on the left half of the epiglottis; Mr. B. Pitts[11] and Dr. Turney[12] have reported several cases to prove this. In the four post-mortem examinations on cases in this series, and in post-mortem examinations on some non-diphtheritic cases which I have seen, no such ulcer was present. In all the reported cases of ulceration of the epiglottis due to the thread there has also been severe ulceration elsewhere in the larynx and trachea. It would seem that the former only occurs when the latter, and more serious, ulceration is present and that both result from the low-resisting power of the mucous membrane in certain cases. Abrasion of the epiglottis can, I think, be avoided by careful adjustment of the string on the cheek. Any disadvantage referred to the string on this score is more than compensated by its advantages. The string affords a ready means for removal of the tube by medical man or nurse should it become suddenly blocked by membrane. In the following case the prompt action of the nurse gave the child instant relief and perhaps saved his life.

CASE 2.—A boy, aged two and a half years, was admitted on April 12th, 1902, with faucial and laryngeal diphtheria. Croupy cough began the day before admission. Klebs-Löffler bacilli were present. There was some collapse of the upper lobe of the left lung. He was intubated after the trial of a steam-tent. Dyspnœa was completely relieved. Early

[6] Edinburgh Medical Journal, vol. xxxvi., p. 925.
[7] THE LANCET, Nov. 26th, 1892, p. 1216 (Case 16).
[8] St. Thomas's Hospital Reports, 1889, p. 85 (Case 1).
[9] Brit. Med. Jour., vol. ii., 1894, p. 1475.
[10] New York Medical Journal, No. xvii., p. 26.
[11] THE LANCET, Sept. 23rd, 1893, p. 735 (Cases 38 and 40).
[12] Op. cit. (Cases 3, 6, 7).

on the morning of the 13th the child suddenly got black in the face and stopped breathing. As I could not reach the tube bedside for some minutes the nurse pulled out the tube which was blocked by a membranous cast of the trachea. The cast was coughed out and the child rapidly regained his colour. The tube was replaced although the child was fairly comfortable. On the 15th the tube was removed; there was no further need for it. The child made an uninterrupted recovery. He was fed by the mouth while the tube was in the larynx, the milk being slightly thickened with arrowroot.

In this case the tube was replaced because experience had shown that attempts to dispense with the tube in the first 24 hours are generally useless. The general condition of the child made it desirable that he should be spared the strain of a return of dyspnœa. The chief use of the string is that by it the tube can be removed more easily and rapidly and with less damage to the larynx or trachea than by any other means. The objections to other methods of extraction of the tube will be referred to below.

After-treatment.—As soon as the tube is in place the child should be laid on his side to facilitate the escape of mucus, &c., coughed up. The violent coughing which follows the operation soon gives way to peace and quiet and the child is at last able to sleep. With regard to the important question of feeding most surgeons condemn all feeding by the mouth and make use of the nasal tube or rectal alimentation. Feeding by the mouth is possible in a large number of cases and a trial of this method is to be recommended in all. The early cases in this series were fed by means of the nasal tube, but not being convinced of the necessity for this I endeavoured to feed the rest by the mouth, on the principle that the less the child's mode of life is disturbed the less trouble would there be in dispensing with the tube at a later date. Of 19 cases in which feeding by the mouth was attempted eight were fed thus throughout and all recovered. Of the remaining 11 cases six were fed by the mouth for the most part, only a few nasal feeds being found necessary. All these recovered. Of the other five cases in which nasal feeding was necessary throughout or for the greater part of the time the tube was in use, two died. After intubation a child should be fed by the mouth with food suitable to his age and general condition; in most cases this will be fluid, consisting principally of milk. Many children take this well, if given slowly and carefully, a spoon being used for the younger children. If the child coughs much the milk should be thickened with a little arrowroot. If, in spite of thickening the fluids, attempts at swallowing induce more than an occasional cough feeding by the mouth should be discontinued, the nasal method being substituted for it. Raising the foot of the bed so that the child drinks uphill (Casselberry's position) is unnecessary. The worse the general condition of the child the more difficulty will there be over the feeding. Although there may have been no difficulty in feeding a case while the tube was in place, nasal feeding may have to be resorted to after its removal; this occurred in two or three of my cases. No steam-kettle or tent should be used except when the cough is dry and troublesome, when the effect of the steam may be supplemented by giving expectorants.

An important point is to determine when to take out the tube. In the early stages it should be removed once in every 24 hours for cleaning; this also helps the expulsion of membrane. It is difficult to lay down rules for the removal of the tube, as so much depends on the general condition of the patient. I would suggest the following procedure in a case of average severity. The tube should be removed and replaced at the end of 24 hours. The tube should be removed at the end of a further 12 hours and results awaited. The child is unlikely to get dyspnœa immediately. If the tube has to be replaced it should again be removed after 24 hours. If yet again it has to be replaced it may now be left in for 48 hours; this will often enable the child finally to dispense with the tube. Attempts at discontinuing the use of the tube before 36 hours are almost invariably unsuccessful and result in the operation having to be performed in a hurry. Dr. Northrup[13] says that the older the child is the earlier can the tube be left out. In the cases now under consideration, if those that ended fatally and the two prolonged cases referred to below are excluded, we have 22 cases which ended in recovery. The ages ranged from 11 months to ten years and nine months. The average time that the tube was necessary in 13 cases aged three years and under was six days and nine hours. The time in nine cases over three years of age was four days and five hours. These figures, then, bear out Dr. Northrup's statement. Both the prolonged cases were over three years of age. Mr. Kellock says that the condition of the fauces should guide us in deciding when to discard the tube. In his cases the average time was 27 hours. The longest recorded case is one quoted by Dr. A. Brothers[14] in which the tube was borne for 58 days with interruptions to the end of the twenty-first day. In one of my successful cases the tube was only required for 32 hours. The longest case required the tube till the thirty-fifth day (*vide* Case 4). The longest time the tube was in place without being removed was 79 hours; this case recovered. A slight rise of temperature is not uncommon after the tube is first introduced, but this, as a rule, lasts for a day or two only. This pyrexia may be seen in cases which have been in hospital for several hours prior to the operation and in which, therefore, the temperature as taken before intubation is free from any temporary depression such as may be caused by exposure on the way to the hospital or during washing after admission. In such cases there is no collapse of lung or other obvious cause for the rise of temperature. Rapid and easy insertion of the tube does not seem to prevent this rise of temperature, though roughness may, I think, increase it. I suggest that absorption from the larynx is the cause of this pyrexia. A certain amount of damage to the inflamed mucous membrane can hardly be avoided.

Extraction of the tube.—Reasons have already been given for leaving the string attached to the tube and thus providing a ready means of withdrawing the latter. The strongest arguments in favour of extraction by the thread are the difficulties and dangers attending other methods. Without the thread we have to resort to the use of the extractor, or to Bayeux's method of "enucleation," or expression of the tube, unless some form of special tube is in use. The "enucleation" method was used with success by Dr. Basan who cites a case in which a nurse saved a child by removing the tube in this way. This method is not, in my opinion, free from danger to the already irritated trachea. The commonest lesion that is found in fatal cases of intubation is an excoriated surface or ulcer on the anterior wall of the trachea opposite the lower end of the tube. This portion of mucous membrane shows signs of injury after the tube has been in but a few hours, as a case to be quoted later shows. In expressing the tube the thumb is placed on the front of the trachea just below the level of the lower end of the tube and is then pressed upwards and backwards, forcing the tube out in front of it. The force must be transmitted to the tube through the portion of mucous membrane alluded to. The chances of getting deep ulceration at this spot are thus greatly increased. Mr. Pitts and Dr. W. Brook[15] record a case of death from gangrene of the lung after intubation, the only pathological lesion of the air passages being a healed ulcer on the anterior tracheal wall. Enucleation is easily performed with the child lying on his side near the edge of the bed and may be useful if the string is bitten through. The extractor is a dangerous weapon, requiring the greatest skill and gentleness in its use if serious damage is to be avoided. Every unsuccessful attempt at extraction with this instrument must leave the larynx injured by its pointed jaws: the screw which regulates the separation of the jaws limits but little the damage that may be done. As indicating the distress that may be caused by the manipulations of this instrument I may quote a case mentioned by Dr. Mackenzie[16] in which death occurred during attempts at extraction. Various forms of tube have been invented with grooves cut in the upper end or flaps of rubber to enable them to be removed by a long finger-nail or special forceps. As far as I know special tubes have not found favour in this country.

Complications.—Vomiting during or after intubation is rare and occurred in only one case of my series. Coughing out the tube is seen but rarely if one of a suitable size has been chosen. This accident was met with in four cases, in one of which the tube was expelled twice, on the first occasion with a definite piece of membrane. Another case had whooping-cough. In the remaining two cases the tube was rather small: one of these was the hydrocephalic child already referred to, and the other was Case 4. On intubating, the tube may be blocked at once by membrane or

[13] Op. cit.

[14] New York Medical Record, July 27th, 1889.
[15] Transactions of the Medical Society of London, Dec. 1st, 1890.
[16] Op. cit. (Case 10).

the latter may be pushed down and occlude the lumen of the trachea. The former accident, which is more likely to occur during re-intubation, was met with in the following case.

CASE 3.—The patient was a boy, aged 14 months; he had had whooping-cough recently, though he had not whooped for a week. He had chronic bronchitis. The boy had been worse for the last four days. On admission the child was very emaciated; croupy cough, occasional stridor, and some recession of the chest were present; there were also signs of bronchitis with dulness at the left apex. He was intubated about six hours after admission. Distress immediately increased and no air entered through the tube. The tube was pulled out by the thread and with it a membranous cast of the upper part of the trachea. The tube was replaced with complete relief of the dyspnœa. The child died about 12 hours later, without having had any further trouble with the tube. A necropsy was refused.

If immediate relief be not afforded by intubation or if the child's distress increases the tube should be removed. Membrane may accompany it or be coughed out soon afterwards. Tracheotomy should not be performed in such an emergency until the effect of removal of the tube has been seen. With the thread attached it is a question of a moment's delay only. Membrane may block the tube at any moment during the first few days of intubation. This occurred in four cases of the present series. In one the tube was coughed out and in the other three it was pulled out by the thread. It is advisable to explain to the nurse in charge the condition which calls for immediate extraction of the tube. The condition in which membrane is hanging loose in the trachea and flapping against the end of the tube is a difficult one to diagnose. Dr. Northrup mentions the following three signs of the presence of loose membrane: (1) croupy cough although the tube is in the larynx; (2) flapping sound; and (3) sudden obstruction to the outgoing air, especially during coughing. To these may be added recurrent attacks of urgent dyspnœa of short duration, caused by the loose membrane being jammed in the tube on each occasion. In one of my cases complete blocking of the tube, necessitating its removal, was preceded by two short attacks of dyspnœa. The tube should be pulled out in the hope that the membrane may follow it. Dr. Northrup recommends short tubes of large calibre for use in these cases. The same writer says that a piece of membrane may act as a ball-valve at the lower end of the tube and so give rise to emphysema of the lungs. Dr. O'Dwyer is said, in his first 209 intubations, to have met with three such cases, all of which ended fatally. Mr. Pitts[17] says that Mr. H. Stansfield Collier has also met with cases of rapid distension of the lungs. I have met with one case which, I think, may have been of this nature, although at the time the case was not considered to be one of diphtheria.

Excessive coughing may be associated with the expectoration of thick, tenacious mucus which is expelled through the tube with difficulty and may give rise to definite obstruction. Of more common occurrence is the presence of profuse watery expectoration which keeps the child constantly at work trying to rid himself of the froth; frothy mucus literally pours from the child's mouth. This condition is associated with great restlessness. By laying the child well over on his side and frequently clearing the throat with a swab relief may often be afforded. If this prove of no use the foot of the bed may be raised to help the escape of mucus and a subcutaneous injection of atropine may be given, a little morphia being added if the child be very restless. The following case may be given in detail as an example of the condition just referred to and as presenting other points of interest.

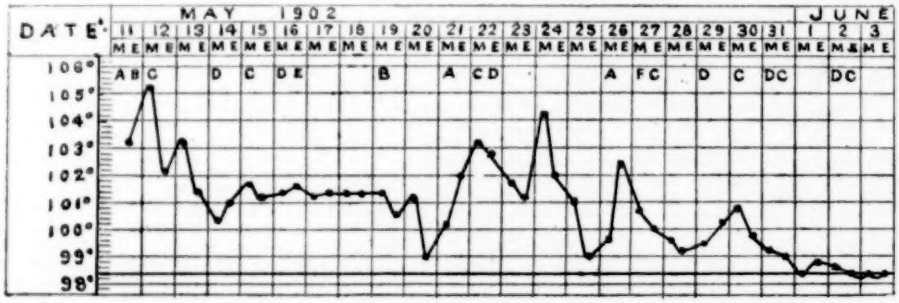
CASE 4.—The patient was a boy, aged five and a half years. There was a vague history of increasing dyspnœa and vomiting for the previous 36 hours. On admission to the Children's Hospital on May 11th, 1902, he was absolutely livid. Membrane covered both tonsils. He was intubated at once when a teaspoonful of muco-pus shot into the mouth, apparently from the larynx. (No pus was seen after this.) Complete relief followed. The silk thread was bitten through in an hour or so. The tube was removed by means of the extractor by a colleague and was replaced with fresh silk, but this shared the same fate. Silkworm gut was then tried on the other side of the mouth, but this was divided in a few minutes. Four strands of silk were then used with success. 9000 units of antitoxin were given. The patient was very pale and restless on the night of the 11th. Morphia and atropine were given subcutaneously on the 12th. Rattling in the throat was very distressing, the quantity of mucus being enormous. The foot of the bed was raised and the injection of atropine was repeated. Klebs-Löffler bacillus was present in cultivations from the throat. The tube was removed, cleansed, and replaced. On the 16th the cough was better. The tube had been removed in the afternoon of the 14th but had to be replaced on the 15th; on the 16th it was removed. On the 18th there was pneumonia at the left base. There was some recession of the lower ribs, apparently due to the condition of lung. On the 19th there was a patch of consolidation at the angle of the right scapula. On the 21st the tube had to be replaced as the recession became much worse. Considerable relief followed. On the 22nd the lungs were better and the tube was removed. On the 26th the tube had to be re-inserted. On the 27th the tube was coughed out. On June 11th the child had worn the tube intermittently since the previous note and still required it in spite of being under the influence of morphia and the bromides which were administered before the tube was removed. The child could do without the tube for periods varying from 50 minutes to four days, after which he suddenly got dyspnœa, requiring immediate intubation. The dyspnœa (? spasm) came on quite suddenly, often on waking; in from one to three minutes he was livid. Inhalations of chloroform were useless; there was no time to get the boy under the influence of the anæsthetic when once the spasm had commenced. There were still some signs of pneumonia at the left base. The tube was removed on the night of the 13th. On the next morning there was some distress which passed off after twice swabbing the larynx with a 5 per cent. solution of cocaine and quieting the boy by talking to him. No further trouble with the breathing occurred. The tube had been in use, with intervals, for 35 days. He eventually made a good recovery.

This case seems to be an example of ulceration of the larynx which recovered under intubation and without tracheotomy being performed. The child was comfortable without the tube from the sixth to the eleventh days and from the thirteenth to the sixteenth (*vide* chart). Some abrasion or ulceration must have been present. During these days the temperature was raised, but the condition of the lungs might account for this. During the last fortnight of the period of intubation the temperature was normal, so that the ulceration was probably slight. The sudden spasm of the glottis in this case indicated the presence of ulceration, though partly depending on the nervous temperament of the child. Fright is often the determining cause in such cases. I have seen a child in whom intubation tubes were being used for chronic stenosis of the larynx get livid because I began to leave the ward immediately after removing his tube instead of staying with him as my custom was. Words are of more use than drugs in these cases; sedatives seem to be of little use, though they should always be tried. As regards the use of cocaine, applied locally in these cases and in those with gradually increasing dyspnœa due to œdema, it is difficult to estimate how much of the improvement should be attributed to the drug. Of two cases in which suprarenal extract was tried with the object of reducing the swelling of the mucous membrane one was relieved. A mixture of cocaine and suprarenal extract might be of more value.

Severe ulceration of the laryngeal mucous membrane is uncommon nowadays. Superficial ulceration is probably present in the cases in which one finds difficulty in discontinuing the use of the tube. The signs of deep ulceration are free bleeding from the larynx during the introduction or removal of the tube, staining of the tube, rapid and repeated appearance of œdema or spasm of the glottis after removal of the tube, tenderness over the thyroid cartilage, and pyrexia. Œdema of the glottis coming on some days after removal of the tube is a certain sign of ulceration. Dr. Turney records a case of œdema coming on 15 days after removal of the tube. At the necropsy ulceration of the larynx was found. If some or all of the above signs are present and yet the child seems to be remarkably well and certainly "holding its own," intubation may still be continued. The general condition of the patient should be our guide when considering the advisability of resorting to tracheotomy. The two long cases already referred to, requiring a tube till the twenty-third and thirty-fifth days respectively, showed some signs of ulceration. Intubation was persisted in because the general condition remained unaltered; the result

[17] Brit. Med. Jour., vol. ii., 1893, p. 175.

in both cases justified the treatment. If a child with ulceration of the larynx begins to go downhill tracheotomy should be performed at once. The formation of an abscess in front of the larynx or the trachea calls for immediate tracheotomy. Scarlet fever occurring in the course of an intubation case indicates tracheotomy, especially if the child's condition be grave. In my series three secondary tracheotomies were performed, but I am now convinced that in each instance the operation was unnecessary. The first was done because the child was not doing well. The child died with a temperature of 107·8° F. 24 hours after admission. Post mortem broncho-pneumonia was found; there was membrane in the larynx but none in the trachea. In the second case laryngeal diphtheria, as well as bronchitis. The child lived till the thirteenth day, the intubation tube being discarded on the eleventh. The heart was considerably dilated and the child gradually sank. The fourth case, a baby, aged 18 months, with severe hydrocephalus, required the tube till the eleventh day, by which time definite signs of pneumonia had made their appearance. The patient died on the fifteenth day with general rigidity and retraction of the head. The remaining case was Case 1, in which the patient died during the operation of intubation. Of the cases in which post-mortem examinations were made the first was admitted with broncho-pneumonia and laryngeal diphtheria and lived one day. Post mortem broncho-pneumonia was found; there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A, Intubated. B, Nasal feeding. C, Re-intubated. D, Tube removed. E, Fed by mouth. F, Tube coughed out.

tracheotomy was performed by a colleague in my absence after attempts at re-intubation had proved unsuccessful; recovery followed. The third case was a very severe one, complicated by broncho-pneumonia and anuria. Tracheotomy was performed on the third day on account of the great recession of the lower ribs and sternum, the intubation tube being in place. The coughing set up by the introduction of the tracheotomy tube relieved the child for a short time only; in a few minutes the recession was as bad as ever and was obviously due to the lung condition which proved fatal. No membrane was found in the trachea. I believe that tracheotomy is very rarely required after intubation. A large number of secondary tracheotomies have been performed owing to a want of experience on the part of the operator and through a natural fear that the best was not being done for the patient. Mr. Pitts,[18] writing in the pre-antitoxin days, stated that tracheotomy following intubation was very fatal and cited 18 such cases treated at St. Thomas's Hospital, 16 of which proved fatal. Mr. Kellock informs me that out of 14 similar cases at the Hospital for Sick Children, Great Ormond-street, in the years 1890-92 11 patients died. The severity of a case, no doubt, leads to the performance of tracheotomy; still, I believe that in the great majority of cases secondary tracheotomy diminishes the child's prospects of recovery. As to the occurrence of pulmonary complications, signs of which develop after intubation, pneumonia occurred in three cases, two of which ended fatally. In both of these fatal cases death occurred without a tube being in the larynx, the obstruction having been cured. In two other cases bronchitis developed but did not interfere materially with convalescence. Pneumonia, resulting from milk and other food being inhaled through the tube, is regarded by some as common. This does not appear to be the case, though all nourishment is given by the mouth.

A study of the fatal cases is of some interest. Of the nine fatal cases a post-mortem examination was permitted in only four. Of the other five cases, the first was a baby, aged 10 months, admitted for abscesses on both sides of the neck. Six days before death signs of pneumonia appeared. Laryngeal obstruction came on rapidly and intubation was followed by considerable relief, but the child died 24 hours later. The second case has already been mentioned (*vide* Case 3). Broncho-pneumonia developed after whooping-cough and diphtheria ended the case. The child lived for about 12 hours after intubation. Both these cases were really hopeless from the first. In the third case, the patient, aged 20 months, was admitted with nasal, faucial, and

[18] Ibid.

was membrane in the larynx and for a short distance below; there was no ulceration; the heart was dilated. In the second case diphtheria occurred at the end of a severe attack of whooping-cough, during which signs of tuberculosis of the lungs appeared. The child died on the day after intubation. Post mortem general tuberculosis was found; there was membrane in the larynx and trachea; a small "intubation ulcer" was found on the anterior tracheal wall opposite the lower end of the tube. The child's serious condition would account for the rapid formation of an ulcer in the trachea. In the third case the patient, aged 17 months, developed pneumonia on the fourth day and lived till the fourteenth, eventually dying from pneumonia; the tube was used till the tenth day. Post mortem pneumonia of the right lung was found; some clear fluid was present in the left pleural cavity; there were no tubercles. In the larynx a deep ulcer with flat injected edges was found in the mid line in front just below the cords. The floor of the ulcer was formed by the crico-thyroid membrane. The usual "intubation ulcer" in the trachea was also present. In the last case the patient died three days after admission from anuria and broncho-pneumonia. Post mortem broncho-pneumonia was found; the mucous membrane of the larynx was distinctly thickened and presented tracts of superficial ulceration; there were no membrane in the larynx or the trachea and no ulceration in the trachea; the tracheotomy wound passed through the usual situation of the "intubation ulcer." Evidences of tubercle were found in the mesenteric glands but not elsewhere. In many of these cases we can, I think, justly conclude that the fatal result could not have been avoided had primary tracheotomy been performed.

In medical literature of the pre-antitoxin days numerous cases of severe ulceration are found; such cases are fortunately rare nowadays. Though no such case is found in this series, I have met with one or two ugly results from intubation in non-diphtheritic cases. The few results given above do not give a correct idea of the damage that may occasionally be done by an intubation tube. Abrasion or ulceration of the mucous membrane can occur very rapidly in debilitated patients. Dr. Turney[19] gives a case of commencing excoriation after eight hours and another of extensive ulceration after 36 hours of intubation. Cases in which the tube slipped through the ulcerated larynx and lodged in the bronchus or the trachea are given by Dr. Turney[20] and Dr. W. W. Ord.[21] The latter diagnosed the accident as the child could

[19] Op. cit. (Cases 4 and 5).
[20] Op. cit. (Case 6).
[21] St. Thomas's Hospital Reports, 1889, p. 65.

phonate, although the tube was supposed to be in the larynx; difficulty in extraction by means of the string confirmed his diagnosis. Stenosis of the larynx, partial or complete, is recorded by Mr. Pitts and Dr. Brook, Dr. Basan, Dr. Chavasse,[22] and Widerhoffer.[23] Dr. Mackenzie gives a case of abscess over the front of the larynx. I have seen a non-diphtheritic case in which an abscess gradually developed over the front of the trachea, although the tube had only been in use for 18 hours. The abscess extended from the cricoid to the thymus gland. Swallowing of the tube has occurred in the practice of several writers. The tube is always passed without trouble. In a case of undiagnosed retro-œsophageal abscess two tubes, of different sizes, were used. At the post-mortem examination two excoriated patches were found on the anterior tracheal wall corresponding to the lower ends of the two tubes. The tubes were both in use for 24 hours. Some excoriation was present in the centre of the posterior surface of the epiglottis. The voice does not seem to be altered for any length of time after intubation. Speech rapidly becomes distinct, though some huskiness may remain for several days or even weeks. In two cases, intubated for three and four days respectively, the voice was still weak three weeks after removal of the tube. The chances of permanently damaging the larynx are small indeed. The boy who required the tube for 35 days (Case 4) recovered the use of his voice completely.

In conclusion, I may state that nearly all the above cases were proved to be diphtherial in origin by bacteriological examination and that in each of the cases in which such examination gave negative results definite membrane was discharged from the larynx or trachea. In this country sufficient attention has not been given to intubation. Its employment in a few more hospitals would, I think, eventually lead to its adoption in all.

Harley-street, W.

TWO FATAL CASES OF PARTIAL THYROIDECTOMY,

DEATH RESULTING IN ONE CASE FROM INSUFFICIENCY OF THYROID SECRETION AND IN THE OTHER FROM ITS EXCESSIVE ABSORPTION.

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GOITRE is a very common condition in Egypt and usually has attained such a size before advice is sought that partial removal holds out the only hope of relief from the symptoms which, however, in almost all cases are those of inconvenience from the great size of the tumour and not of injurious pressure upon the trachea, the veins and nerves of the neck, or any other important structures. In spite of the difficulties and dangers of the operation, such as hæmorrhage, interference with the vagus nerve, &c., the patients usually do well and only very rarely exhibit any untoward post-operative complications. The cases which I wish to record are very good illustrations of the possible complications of the operation, depending entirely upon the condition in which the thyroid gland is left after it.

CASE 1.—The first patient was an Egyptian girl, aged 12 years, who was a deaf-mute but who in other respects appeared to be quite intelligent and well developed. As is unfortunately only too common with Egyptians of even average intelligence, no satisfactory history as to the duration and rate of growth of the tumour could be obtained, the only relative of the patient living at a great distance from Cairo. From an examination of the illustration (Fig. 1) it will be seen that the appearances were those of a typical tri-lobed goitre, which was not adherent either to the skin or to the deep structures of the neck. There was no dyspnœa or dysphagia or other sign of pressure, but all the movements of the neck were considerably interfered with owing to the size of the goitre.

The removal of the mass after the skin of the front of the neck had been raised in one large apron-shaped flap presented no special difficulty; indeed, it was so easy to shell out all three lobes that I was much tempted to remove them entirely. However, a piece of the isthmus of the size of a walnut was left in the middle line of the neck, and after careful ligature of all the divided vessels the skin flap was sutured with a continuous silk suture and the whole wound was thus closed without drainage. Two days after the operation the patient had a sudden attack of dyspnœa and presented all the symptoms of severe laryngeal spasm. The spasm subsided after a few hours and did not recur until many days later. On the following morning all the signs of early and not very marked tetany were observed in the hands and feet and a thyroid tabloid of five grains was

FIG. 1.

Showing multiple-lobed goitre.

ordered to be given twice a day. During the next two days the tetany persisted and became much more marked and then it gradually disappeared.

It was noticed that the patient had become very pale and anæmic since the operation, but there was no sign of myxœdema anywhere, either at this time or subsequently. In spite also of forced feeding she became more and more emaciated. The thyroid tabloids were continued for a week, but as the tetany disappeared maltine and other tonics were substituted. At this time it was thought that the symptoms of insufficiency of thyroid secretion were due to the inability of the remaining piece of thyroid gland to supply sufficient secretion for the needs of the organism for the first few days after the operation—that is, until it had become accustomed to the extra work thrown upon it by the removal of the rest of the gland—and that coincident with the disappearance of the tetany and the absence of other symptoms of insufficiency it had then taken over its new duties and was now supplying all the secretion that was necessary. However, on the twelfth day the tetany returned and the tabloids were again exhibited but with little or no effect; for, though the spasms were not so frequent, they were more severe than before and were confined mainly to the extremities but with occasional respiratory seizures. The patient was bathed in perspiration after the attacks and the emaciation and general weakness became more and more marked. Finally, 24 days after the operation she died after a very severe and almost general seizure which particularly involved the respiratory muscles.

The cause of death was post-operative tetany of the respiratory muscles. This tetany in the early stage resembled hysteria and were it not for the attendant circumstances of the case it might easily have been mistaken for it; while later the spasms became so severe as to simulate tetanus. At the post-mortem examination no trace of thyroid substance could be found in the neck and it was quite obvious that the

[22] Brit. Med. Jour., vol. ii., 1889.
[23] Naturforscher Versammlung in Bremen, 1890.

small piece that had been left at the operation had undergone complete atrophy. No lesions were found in any other organ. It is to be regretted that thyroid medication was not pushed to the extreme limit of safety in this case as it must be confessed that with the present facilities for the introduction of thyroid material into the body post-operative tetany ought to be a curable complication.

CASE 2.—The second case was the exact antithesis of the first and was that of a goitre of eight years' standing in a blind man, aged 24 years. As the illustration shows (Fig. 2)

FIG. 2.

Showing single-lobed goitre.

and as subsequent operation proved, the enlargement was confined entirely to the isthmus. It had increased rapidly in size during the last three years and was producing a certain amount of difficulty in breathing owing to direct pressure upon the trachea.

Removal was effected in the usual way but the operation was rather difficult on account of the extreme vascularity of the mass and its firm attachments above. The only points at which the thyroid substance was divided were at either side, a very narrow pedicle connecting the enlarged isthmus with two normal lateral lobes. The structure of the mass was that of an ordinary parenchymatous goitre with considerable cystic change. Three layers of silk sutures were put in, one for the deep cervical fascia, another to draw the edges of the sterno-thyroid and sterno-hyoid muscles together in the middle line, and the third for the edges of the skin flap. A packing of sterilised gauze was placed in the cavity deep to the cervical fascia, the end being brought out of the lower end of the flap. The operation took about an hour and the patient was rather collapsed after it though not a great deal of blood had been lost. Almost as soon as the effects of the anæsthetic wore off he began to be restless and excited and both his pulse and respiration became very rapid. He was given normal saline solution by the rectum and strychnine and morphia hypodermically but without much effect, for the same evening his pulse was 144, his respirations were 52, and his temperature was 102° F. No physical signs either in the heart or the lungs could be found to account for these symptoms and Mr. Ll. P. Phillips, the resident surgical officer of the Kasr-el-Aini Hospital, regarding the case as one of thyroid toxæmia very rightly removed the packing and washed out the whole cavity with saline solution and then put in a large drainage-tube. The patient's condition did not appreciably improve during the night and next morning he was drowsy and semi-conscious and the temperature reached 103°, while the pulse and the respiration maintained their former rapid rate. He was then transfused by the veins with one and a half litres of normal saline solution and the wound was freely opened up and well irrigated. All to no purpose, however, for, although the restlessness was controlled by morphia, his general condition did not improve and he died 28 hours after the operation.

No post-mortem examination was allowed but it seems reasonable to conclude that the cause of death was the sudden introduction of thyroid secretion into the system, absorption taking place from the cut surfaces of the isthmus, the extreme vascularity of the part accounting for the rapidity of absorption. The symptoms were not those of collapse but were exactly similar to those observed when the administration of thyroid extract has been pushed to a severe degree. In a fairly large series of cases of partial thyroidectomy I have never met with either of these complications before and they illustrate very well the opposite extremes of the possible dangers due to interference with the structure upon which we are operating.

My only other fatalities have been one case from hæmorrhage, eight hours after operation—due entirely to the neglect of a native attendant—and another from a condition which I may call "kismet" and which it will be difficult for those who work entirely among Europeans to understand. The patient was an old woman who, three weeks after the operation and when she was ready to leave hospital, refused to go out as she had no home to go to and announced her intention to die, which she did in spite of all efforts to keep her alive by food, strychnine, and stimulants. She gradually "faded away" and nothing was found post mortem to justify her dying. I have met with this "death by willing" on other occasions in hospital practice in Egypt. These cases cannot be included in the category of those in whom "the operation was a perfect success but the patient died," for neither the operation nor the condition that necessitated it was in any way responsible for the death. They were typical instances of the power of dying at will.

Cairo.

ON THE DANGER OF RAILWAY TRIPS TO HIGH ALTITUDES, ESPECIALLY FOR ELDERLY PEOPLE.[1]

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OUR Alps claim their annual victims. Not only thoughtless youths but careful men who have arrived at the age of discretion succumb to accidents of various kinds, so that the deaths from such causes, often in themselves avoidable, amount to 60 per annum. Nay, even sober-minded grey-haired men who have many years since dismissed any thought of Alpine climbing, and who rightly condemn those who hazard their limbs or even their lives by undertaking difficult ascents without guides,—even these may inadvertently run great risks, as will presently be shown. The great majority of the public, and even some medical men, ignore the various dangers that menace the lives of elderly persons undertaking mountain ascents—say, at elevations higher than 3300 feet above sea-level. These dangers may be summed up in two words, apoplexy and heart failure; but instead of the latter expression it is better to use the two medical terms "thrombosis of the heart" and "embolus of the lung." The explanation of the matter is extremely simple. On the one hand, many persons have a difficulty in realising that they are getting on in years, while, on the other hand, degenerative processes may develop in the heart without causing any symptoms, and in the case of such patients incautious mountain ascents are not only dangerous to life but may even have a fatal termination. I wish to call particular attention to the circumstance that such seizures do not occur exclusively during the stay of the patients at the high altitude but may come on, either slowly or abruptly, one, two, and even three days after they have returned to the low ground. The general public, and sometimes also the medical profession, therefore fail to perceive that there is a direct connexion between the catastrophe and the high altitude. Not a few medical men are of opinion that there cannot be any such causal connexion when several days intervene between the stay at the high altitude and the onset of heart failure or apoplexy, but they are certainly in error, though I quite recognise the great difficulty

[1] Abstract of a paper read before the Medical Society of Zürich on Nov. 15th, 1902.

of supplying direct and convincing proofs in these cases. Nothing but the careful observation of clinical facts will clear this matter up and I trust that the present contribution to the subject may stimulate others to similar investigations. Further physiological and clinical research may then succeed in clearing up some points which are as yet not fully understood.

It is well known that visits to high altitudes endanger the physical welfare of patients suffering from diseases of the circulatory and respiratory system, but it is very difficult to formulate warnings which may be of general applicability.

As regards the altitude, a difference of from 1300 to 1600 feet may act detrimentally on patients suffering from the first symptoms of heart failure, whether dependent on the condition of the endocardium or the myocardium. As far as my experience goes, this altitude, as in the case of the Uetliberg (2850 feet), situated 1500 feet above Zürich, is less harmful in such cases than the sudden and considerable differences of temperature which are more liable to occur on an exposed peak than in a valley of the same altitude. My experiences derived from Adelboden (4400 feet) go to prove that such a height cannot be considered a matter of indifference, even though the place is well sheltered by surrounding mountain peaks. Patients suffering from disease of the valves or muscle of the heart or from arterio-sclerosis with whom a residence at that elevation did not agree improved immediately if I sent them down only 1000 feet lower. It therefore seems advisable on practical grounds to fix the upper limit of indifferent altitudes at 1000 metres, or about 3300 feet above sea-level. As soon as altitudes of 2000 metres or more (over 6600 feet) are in question it is necessary to give more attention to the contra-indications and to be much more careful with the patients. At such heights disagreeable or even alarming symptoms soon make their appearance, and even become intense, in patients suffering only from the initial stages of vascular disease.

Questions relating to the limits of age present similar difficulties. Only a careful examination of each patient will enable the practitioner to give a proper opinion, for vascular changes and degenerative processes in the heart may be established soon after 30 years of age. I gather from a small treatise by Dr. Hampelin[2] that of upwards of 100 cases duly examined post mortem 25 per cent. were at ages between 30 and 40 years, 25 per cent. were between 40 and 50 years, and 33 per cent. were between 60 and 70 years. However, this refers to severe cases which ended fatally, and especially to the labouring classes, who generally have much more strain put on their vascular system than the well-to-do middle and upper classes, whereas it is with the latter that the present paper is principally concerned. As a rule vascular changes are in these cases most frequent between the ages of 50 and 70 years. It must be remembered that on the one hand clinical symptoms may be absent where a post-mortem examination reveals serious and important anatomical lesions and that, on the other hand, the results of the pathological investigation, even when duly aided by the microscope, may not in the least correspond to the severity of the symptoms observed during life. Practically it is only possible to estimate the degree of loss of function (*den Grad der Functionsstörung*) and to draw conclusions as to the soundness of the muscle of the heart from its capacity or incapacity for work.

I have already in THE LANCET[3] referred to the danger of high altitudes for patients affected with arterio-sclerosis and have given indications to guide the practitioner when asked for advice as to a stay at an Alpine health resort. My principal object in the present communication is to call attention to the danger that elderly people may incur by making railway journeys up to high altitudes. In my paper just mentioned the following sentence will be found: "Rapid ascents to a high altitude are very injurious to patients with arterio-sclerosis and the mountain railways up to 7000 feet and 10,000 feet are positively dangerous to an unsuspecting public, for many persons between the ages of 55 and 70 years consider themselves to be hale and healthy and are quite unconscious of having advanced arterio-sclerosis and, perchance, contracted kidneys." There are in Switzerland quite a number of mountain railways carrying passengers up to altitudes over 6000 feet. I have personal experience of detrimental effects produced on elderly people as soon as this limit is passed. Let me give a list of these mountains. Rigi, 5900 feet; Stanserhorn (on Lake Lucerne), 6330 feet; Schynige Platte (above Interlaken), 6660 feet; Rochers de Naye (above Montreux), 6707 feet; Scheidegg (above Grindelwald), 6770 feet; Pilatus (near Lucerne), 7010 feet; Brienzer Rothhorn (over the Lake of Brienz), 7408 feet; and Gornergrat (above Viége-Zermatt in the Valais), 9905 feet. The railway up the Jungfrau reaches at present an altitude of only 9233 feet, but next year the station Eismeer (10,332 feet) and later the stations Mönch (11,000 feet) and Jungfrau (13,366 feet) will be reached.

Notwithstanding diligent search I have been unable to discover any previous publication referring to the effects of *rapid* changes of altitude on elderly people, for balloon ascents are generally made by comparatively young or healthy individuals. The opinion has almost universally prevailed that the mere ascent to such high altitudes even in complete absence of bodily exertion must act detrimentally on human beings. This view was based on observations made during mountain ascents (as in the Himalayan Mountains), during balloon ascents, and during experiments on the effects produced by artificially rarefied air (i.e., the pneumatic cabinet). The so-called "mountain illness" (*Bergkrankheit*) which attacks healthy individuals who reach an altitude of about 10,000 feet is well known and has been carefully studied. I do not intend to enter into details here but am obliged to mention that this "mountain illness" is not only accompanied but produced by slight dilatation of the right ventricle of the heart; it is thus but a forerunner of the typical case which I shall hereafter describe. A physiologist of note, Professor Kronecker of Berne, has summarised his opinions on the subject of "mountain illness" as follows[4]: "Reduction of barometric pressure leads to congestion (Stauung) of the blood-vessels in the lungs; this impedes the flow of blood to the lungs and *causes dilatation of the right ventricle of the heart.*" When the Swiss Government was asked to sanction the making of a railway up the Jungfrau they appointed a scientific committee to examine the question, Professor Kronecker being one of the members. The summary of this report, which was published at Olten in 1890, was to the following effect: "From a scientific point of view it is not advisable to grant this application until the railway company has proved in a satisfactory manner that such ascents can be made without detriment to health." It must be admitted that the carefulness of the Swiss Government was very praiseworthy.

Mr. Guyer-Zeller who had made the application immediately set to work to collect the necessary evidence. I will only mention the medical opinions that were brought forward. The observations were made by Professor Kronecker (chair of physiology) and Professor Sahli (chair of clinical medicine) of Berne. With much difficulty and by the aid of 42 men seven persons, some of whom were inhabitants of the valley of Zermatt (5314 feet) and some of Berne (1765 feet), were carried in chairs up to the summit of the Breithorn (13,685 feet). They accordingly made the ascent without physical exertion. Their circulatory and respiratory organs were carefully examined on the day before the ascent and again on the summit. I must lay especial stress on the fact that the people from Berne had spent at least 24 hours at Zermatt and had thus had the benefit of a short period of acclimatisation. The altitude that has to be taken into account is therefore the difference of altitude between the Breithorn and Zermatt, a difference of only 8371 feet and not the difference of altitude between the Breithorn and Berne, a difference of 11,920 feet. I may also mention that these 8371 feet were traversed in eight and a half hours, whereas the difference of altitude between Visp and Gornergrat (7740 feet) is now traversed by train in little more than half that space of time. This is of practical importance. Professor Kronecker came to the following conclusions: "Healthy persons do not suffer from being conveyed without any exertion on their part to an altitude of some 12,000 feet, but as soon as any, even slight, muscular action is required of them distressing, or even dangerous, symptoms of circulatory trouble supervene." He also made the following recommendation which, in my opinion, is an excellent one: "A medical man should be stationed at Scheidegg (6770 feet) who would examine any passengers at their wish and expense in order to dissuade them from the trip should they be suffering from any serious affection of the heart or respiratory organs."

It has therefore been proved by accurate and reliable

[2] Ueber Erkrankungen des Herzmuskels, Stuttgart, 1892.
[3] THE LANCET, June 17th, 1899, p. 1628.
[4] Das Project der Jungfraubahn, Zürich, 1896.

observations that comfortable and leisurely conveyance (without any exertion made by the person conveyed) from Zermatt to the Breithorn, a difference of altitude of 8371 feet, during mild weather and on a day almost free from wind caused an increase of the pulse-rate, a decrease of the blood pressure, and a decrease of the vital capacity (*Vitalcapazität*) of the lungs, accompanied by obvious cyanosis. Slight exertion, such as walking 20 paces on level ground, caused the pulse-rate of the most robust guides to rise from 100 or 108 to 120 or 140 and caused that of the persons who had made the ascent in chairs to jump up to 160 per minute. These facts being known it becomes easy to understand that mountain ascents by railway may be productive of serious injury to elderly persons affected with arterio-sclerosis or degeneration of the heart, and it is no longer possible to maintain that, in contra-distinction to active climbing, the mere conveyance of persons (without exertion on their part) to high altitudes is devoid of ill-effects. Muscular activity undoubtedly puts an extra strain on the heart, but that is not the aspect of the case which is at present under consideration. The class of individuals referred to could not walk up a slope for half an hour without being brought to a standstill by symptoms of dyspnœa, palpitation, vertigo, or pain in the region of the heart. Such patients imagine that mountain railways are a great convenience, but my opinion differs from theirs, as will have been seen. Entirely without reference to the cases in which definite heart disease has been diagnosed I recommend that patients with weak hearts should do something by way of testing their vascular and respiratory system before venturing on an excursion up a mountain.

On Dec. 21st, 1894, the Swiss Government granted the permission which enabled Mr. Guyer-Zeller[5] to commence the remarkable and gigantic work of making a railway up the Jungfrau. Nothing can be said against the granting of the permission, for all the evidence available up to the present time goes to prove that healthy persons can by this means enjoy the splendour of Alpine scenery, not only without much fatigue or expense, but also without detriment to their physical condition. It would be quite unreasonable to denounce the making of such railways merely on the ground of the risk that might be incurred by feeble and elderly persons. It is the duty of the medical profession to warn the public of possible risks and the public thus warned ought to be on their guard. By making their views widely known through the medium of the press the medical profession have fulfilled an obvious duty. It must also be remembered that the strictly medical side of the subject requires further elucidation and theoretical inferences will not be of much assistance in this. Descriptions of cases which have been carefully observed are indispensable and I must appeal to my fellow practitioners in Zermatt, Grindelwald, Lauterbrunnen, Lucerne, and other places, for such details, which they will be easily able to furnish when once their attention has been called to the matter. I shall give an account of one typical case which will serve to illustrate a dozen other instances that have come under my notice presenting symptoms sometimes even more acute but less prolonged.

Persons already recognised to be suffering from heart disease scarcely need to be warned against mountain ascents. They all know, or at least have every opportunity of knowing, the risks which they run, but it is right that medical practitioners, or rather the medical press, should insist on the necessity for caution in the case of elderly persons whose vascular system is to some degree impaired, although to all appearance they may be in good health. Such patients—for they are patients—never think of being medically examined before undertaking an ascent; they make the venture on the spur of the moment, without a thought of the possible consequences, and they even neglect to break their journey for a time at an intermediate station. Venous stasis (*venöse Stauung*) becomes slowly but surely established though quite unperceived, dilatation of the right ventricle of the heart ensues, and the blood pressure undergoes serious, perhaps rapid or even prolonged, changes. Subjective symptoms may be absent during the railway journey or during the period of stay at the summit, but if they show themselves the patient will do well to heed the warning. The heart brings its latent reserve force (*seine latenten Spannkräfte*), as Rosenbach calls it, to the front, and as soon as this is exhausted, whether at the high elevation or on the low ground, the catastrophe may ensue. It often happens that it is only after the descent that the vascular system is observed to have been overstrained and either temporarily or permanently damaged. Mountain ascents by railway involve an element of danger for all those who cannot walk up a gentle slope for an hour without feeling disagreeable symptoms, such as shortness of breath, giddiness, &c., whether the cause depends on alterations in the blood (anæmia), in the respiratory organs (emphysema, bronchitis), or in the vascular system (arterio-sclerosis, myocarditis). The majority of these ailments are met with in persons over 60 years of age. It would be going too far to forbid such persons to undertake railway excursions of this kind, but at least a warning ought to be given them and it is advisable for them to be careful. Let them commence with trial ascents of 3000 or 4000 feet above the valley before venturing up to greater elevations. In any case they must "acclimatise" themselves or become accustomed to the reduction of pressure by stoppages at intermediate stations; for instance, let them stay two or three days at Zermatt (5315 feet) before undertaking a trip up to the Gornergrat (9905 feet). Let them refrain altogether from going higher up the Jungfrau than 9000 feet, and before attempting this experiment let them become "acclimatised" by a stay at Grindelwald (3414 feet) and Scheidegg (6770 feet). Persons over 60 years of age should never undertake such trips unless with the consent of a medical man.

It would be very interesting to study the separate factors which act detrimentally on the vascular system in such cases, but they are so complex and so interwoven that it is almost impossible to consider them individually. Professor Levy remarks in a chapter on the Physiological Effects of High Altitudes[6]; "Though the effect of the Alpine climate, as a whole, on the human frame has been well studied, yet the effects of each separate factor are still very obscure." I will, however, pass some of these in review with respect at least to their bearing on the vascular system.

There can be no doubt but that the decrease of atmospheric pressure (a fall of 200 millimetres in the mercurial barometer for an ascent of 10,000 feet) is of importance. Mosso[7] could not detect any difference in the blood pressure, but it must be remembered that his observations were made on soldiers who were hardy mountaineers and were accustomed to live in high altitudes. It would be more appropriate to direct attention to the decrease of blood pressure observed by Professor Kronecker[8] in the persons whom he examined. It is most desirable that more information should be collected about the blood pressure of individuals who have returned to the low ground after a visit to high altitudes. The rarefaction of the air acts indirectly on the circulation by means of congestion of the vessels of the lung as already mentioned (Kronecker). The respiration becomes accelerated to the extent of 10 or 12 additional respirations per minute even in the complete absence of muscular activity; it becomes shallower for a time, only to increase afterwards and to surpass the original ratio. The volume of respiration (*Respirationsgrösse*) is increased even during complete rest by from 40 to 50 per cent. as compared with the corresponding volume for the same individual when on the low ground. This evidently implies extra work for the heart.

The chemical features of respiration also undergo changes. The amount of oxygen which is absorbed sinks while the respiratory quotient (*respiratorischer Coefficient*) rises. This means that the bodily tissues, inclusive of the heart, receive less than the usual amount of oxygen and it has also to be mentioned that the muscular substance of the heart is especially liable to suffer from a deficient blood-supply (Rosenbach). The quicker and more superficial the breathing is (and this is especially the case in elderly persons having an inelastic resistant thorax and suffering from emphysema) the more the want of oxygen makes itself felt. That is the reason why those who inhale only small amounts of air (only 300 or 400 cubic centimetres) at a time are predisposed to mountain sickness. The excess of carbonic acid in the blood must also act detrimentally on the nutrition of a feeble dilated heart. The direct influences on the circulation are manifold. The frequency of the heart beats increases by 20 or 40 per minute, an augmentation which may mean a great deal in the case of a weak heart. An increase in the number of heart beats from 60 per minute to 90 per minute

[5] Mr. Guyer-Zeller's death was announced in the end of 1902.

[6] Handbuch der Physikalischen Tnerapie, von Goldscheider und Jacob, 1901, Band i., S. 129.

[7] Der Mensch in den Hochalpen.

[8] Loc. cit.

for only five hours implies 27,000 contractions instead of 18,000, and the work performed by the heart in an identical space of time increases from 12,600 to 18,900 kilogrammemetres.

A most important factor, which, however, I cannot find mentioned anywhere, is the reduction of the temperature of the atmosphere, especially on exposed mountain peaks. During a mountain excursion of a couple of hours there may be variations of temperature to the extent of from 30° to 60° F. Peripheral blood-vessels are apt to contract and to remain contracted, especially if no muscular exercise is being taken, as in fact happens in these cases. Such vaso-motor changes must affect the blood pressure and the distribution of the blood in the whole system, even as far as the heart. It can be easily understood that on the return to the low ground considerable oscillations of the blood pressure and perhaps a considerable rise of some duration may take place—a sequence of events which may explain the sudden occurrence of apoplexy. It must be remembered that the vessels of the brain have not yet been proved to possess vaso-motor nerves, so that just at the most vital centres of life the regulation of the blood pressure may be very inconsiderable or even altogether wanting.[9] It is therefore not surprising that a feeble heart should show insufficiency under such an unusual strain.

It will here be convenient to make a few general references to acute dilatation of the heart. This condition, our knowledge of which is principally due to English authors, is observed in young persons after infectious diseases such as pneumonia, typhoid fever, influenza, &c. It also often occurs after severe muscular exercise, especially in Switzerland during military service. In Switzerland every citizen has to serve in the army and to do military duty for a period of from three to seven weeks every two years from the age of 20 until he is 32 years old and every four years from the age of 33 until he is 45 years old. On these occasions the men are often called together from sedentary occupations and when they arrive are in a condition quite unsuited for engaging in unaccustomed exercise such as will be required of them within the comparatively short period of from one to three weeks. I have had the opportunity of following divisional manœuvres in which 35,000 or 40,000 men take part every year, and I have seen hundreds of men lying about in different stages of acute exhaustion after having been called upon to make forced marches of 12 or 14 hours for several days. I question whether the interest of the State is served by thus recklessly (shall I add uselessly?) endangering the health of the troops in time of peace and I venture to suggest that my medical brethren in the army would do well to be more careful. If one of them would take the trouble to study the state of the heart in a picked number of some hundreds of men before and after such manœuvres some scientifically interesting and practically useful results would no doubt be arrived at. I happen to have treated one such case eight years ago, occurring in a man, aged 22 years, a tailor, who had already done military service and who had not previously suffered from rheumatism or any other illness until in 1894 he had a slight attack of influenza. The toxins of this disease are well known to have a detrimental effect on the muscular tissue of the heart. Two months afterwards he was called out for his periodical training, in the course of which, to quote his own words, "the troops had sometimes to make almost superhuman exertions, so that on one occasion the medical man attached to the regiment requested the commanding officer to stop the exercises and give the men a rest." After this training was over I discovered a very pronounced dilatation of his right ventricle with insufficiency of the tricuspid valve. I must lay especial stress on the fact that the subjective symptoms were inconsiderable and referred only to over-fatigue and palpitation. The heart beats were 88 per minute and epigastric pulsation was very distinct. Under rest and proper treatment this dilatation, together with the loud murmur over the tricuspid valve, disappeared within a fortnight; the murmurs were not heard afterwards. The pulse-rate became normal and even subnormal (60 per minute). In the following year, however (1895), he suffered from pleurisy on the right side with copious effusion which required tapping and I evacuated about four pints of clear fluid. During this illness a slight dilatation of the right ventricle again occurred and while he was convalescing a systolic murmur was heard over the mitral valve probably due to anæmia; it disappeared, however, in a couple of weeks and did not return. My report on the case led to the man being discharged from further military service. I have seen him every year since then, but only on account of slight ailments. His heart has recovered completely and has remained free from murmurs. I have searched in the medical journals for records of such cases, but I have not found any except in the Vienna journal *Der Militärarzt*. As may be easily understood, acute dilatation of the heart is often observed after violent and prolonged bicycle exercise, especially if the cyclists are not in training, if they have not observed moderation in the amount of fluid which they have drunk, if they have rushed up steep inclines, or if they have ridden for some time against a strong wind. As the individuals concerned are usually young persons whose cardiac muscle is in good condition the heart can, and does, respond by becoming hypertrophied, the result being that dangerous consequences are generally avoided.

It would seem at first sight impossible that dilatation of the heart should be produced in persons who have been carefully conveyed up to high altitudes without any muscular effort whatever on their part, and it would seem equally impossible that the manifestation of grave symptoms should be deferred until 24 or 36 hours after the excursion has been made. The facts, however, must be accepted as they are found in nature and I will gladly leave the explanation of them to those who are sufficiently versed in physiology and pathology. Some of the cases mentioned in the present article may be of service in this respect and records of similar ones will give additional assistance. As regards the long interval which may elapse between exposure to conditions detrimental to health and the appearance of pathological symptoms I can refer to the following facts. I have three times at the age of 38 years had occasion to overstrain my heart at bicycle exercise, my heart being apparently healthy both then and now. With the exception of an unusual sensation of fatigue which continued for a couple of hours I felt no disquieting symptoms until after the lapse of 12, 16, and 18 hours respectively. The same symptoms repeated themselves each time and I have no intention of renewing the experience. I woke between midnight and 4 A.M. with what I should call a fluttering of the heart or, if the expression is admissible, a distinct consciousness that I had a heart (an acute medical observer has said that we are unconscious of the existence of our internal organs so long as they are not out of order). I had no pain but my pulse was irregular, which is a most exceptional occurrence, and it remained so for about the space of an hour when I went to sleep again. I may also refer to the case of my patient mentioned in THE LANCET of June 17th, 1899, p. 1628. He made a railway journey up the Pilatus (7000 feet) and his acute attack of angina only came on some 12 hours later. In THE LANCET of Nov. 8th, 1902, p. 1246, Dr. Alexander Morison has described the illness and death of a patient who was up to the time of his illness supposed to be in good health and whose first attacks of angina pectoris occurred 12 hours or more after unusual exertion and fatigue which must have played a considerable part in the causation. The patient seldom blames the mountain journey for his sufferings and he certainly does not influence the medical man in that direction. The latter, however, finds that patients present severe subjective symptoms with corresponding objective changes after journeys by mountain railway and if he has either known the patients before or can obtain medical evidence as to their previous state of health he will have no doubt as to the sequence of cause and effect.

The symptoms consist of subjective and objective dyspnœa, congestion in the head, vertigo, aural disturbances, and præcordial anguish or even attacks of angina pectoris, all these in different combinations and different degrees of intensity. Objectively, more or less dilatation of the right ventricle of the heart is discovered. That this may often be observed and should be carefully studied I gather from a letter in which a colleague in Zermatt wrote as follows in November, 1902: "I often observe dilatation of the right heart up here and consider this an indication for sending the patient immediately to the low ground." The fact that it is not uncommon for two or three different medical men to see a patient at various stages of the same illness assists in masking the connexion between cause and effect.

[9] Ferrier (Harveian Oration on the Heart and Nervous System): THE LANCET, Oct. 25th, 1902, p. 1099.

Preventive measures have already been sufficiently discussed. As regards treatment, the sending the patient down from the high altitude as soon as possible is imperatively indicated. A carriage is generally a more advisable means of conveyance than the railway, as the patient can be kept quieter. Absolute rest in bed for several days is necessary. In the event of insomnia being present wet packs well covered with flannel may be applied to the lower extremities (*Wadenwickel*) or to the abdomen (*Leibwickel*); bromides may also be given or injections of one-third or one-fourth of a grain of morphine. The heart may be stimulated with caffeine or, better still, with camphor, but not with digitalis. The bowels must act daily, aperients or enemata being resorted to if necessary. Free diaphoresis should be encouraged. Externally counter-irritants may be applied in the region of the heart and in severe cases venesection may be performed. The heart must afterwards be kept comparatively quiet for several weeks and in severe cases even for months.

As an illustration of these points I will now describe a typical case that came under my observation some months ago. The patient was 68 years of age and was a business man in comfortable circumstances. His residence was near the lake of Constance and on Sept. 5th, 1902, he took a trip with his family to Villars, a pretty health resort above Bex in the Valais, situated at an altitude of 4166 feet. For many years he had led a most regular and sober life, had taken great care of his health, and up to that time was considered to be fairly well. Five years before he had been operated on for umbilical hernia; the surgical anæsthesia was of considerable duration and he afterwards suffered from some nervous troubles which lasted for four or five weeks. Four years before he had one attack of hæmaturia which recurred only once—namely, in June, 1902—when a thorough examination was made but without any definite clue being obtained as to the seat of the mischief. There was no albumin in his urine; his heart was found to be healthy and no murmurs were heard. It must be carefully kept in mind that at Villars he had two days for acclimatisation, that he felt well, and that he took some short walks. He had a horror of cold water and he did not indulge in either cold sponging or muscular exercise, his only exercise being an hour's carriage drive twice a day. He had recently been complaining of a tired feeling in his legs which was attributed to varicose veins of some years' standing. On Sept. 7th he made an excursion by train to Bex, Gornergrat, and Zermatt, thus exposing himself within the short space of ten hours to any influences connected with the following differences of altitude—namely, between Villars and Bex, 2755 feet; between Bex and Gornergrat, 8505 feet; and between Gornergrat and Zermatt, 4625 feet. He was quite well during the trip and for the next 36 hours; it must be remembered that at Zermatt he was still at the comparatively high altitude of 5315 feet. The first symptoms showed themselves on Sept. 9th while he was taking a short walk under a hot sun after having smoked a strong cigar at an unusual hour (he generally only smokes a cigar or two in the evening). These first symptoms were very severe and consisted of dyspnœa, a sick feeling, faintness, cyanosis, and profuse cold perspiration. With difficulty he managed to return to the hotel where he was put to bed. A medical man ordered mustard plasters to be applied to the region of his heart and administered bromides and caffeine. During the night he was very uncomfortable and restless, with a pulse-rate varying from 80 to 90, but his condition improved somewhat and he returned to Villars on the following morning (Sept. 10th). It was clearly wrong to allow the patient thus again to subject himself to two new differences of altitude—namely, one of 4569 feet between Zermatt and Bex and one of 2755 feet between Bex and Villars; his medical adviser ought rather to have sent him to the Rhone valley (Bex, Martigny) or to the lake of Geneva (1230 feet). In Villars there was a violent return of the symptoms already mentioned, together with dangerous collapse, great dyspnœa, failing pulse, and bradycardia. The medical man in Villars diagnosed very considerable dilatation of the right ventricle and gave caffeine and tincture of digitalis internally with the external application of counter-irritants such as sinapisms or hot fomentations. The patient recovered to some extent but still was unable to sleep. Having been summoned by telegram to Villars I saw him on Sept. 12th, the fifth day after his disastrous railway journey, and I then made the following notes of his clinical symptoms. As already indicated, he was an elderly man. He was very thin, with ill-nourished flabby muscles; he lay flat on his back suffering from considerable dyspnœa and every now and then he raised himself up in bed to gasp for breath, after which he lay down moaning. His respirations were 36 per minute, his pulse and heart beats were 46 per minute and synchronous, and the radial arteries were slightly thickened. The cardiac impulse was in the normal position just within the mammillary line, the border of the heart projected one inch to the right side of the sternum, and my colleague at Villars said that the dilatation of the heart had previously been still more considerable. The sounds of the heart were quite clear though soft; over the aorta the second sound was accentuated. I must here mention that up to Sept. 18th *no cardiac murmur* was heard. After a loud systolic sound and a softer diastolic one there followed a lengthened pause during which it was sometimes possible to hear a few vibrations, a flutter of the heart pointing to incomplete contractions. One-half of 92 contractions of the heart were so slight as to remain imperceptible to the ear. The veins of the lower extremities were slightly enlarged. The liver projected beyond the lower border of the ribs by a hand's breadth and could be felt as a hard mass. There were signs of emphysema of the lung, but no symptoms of bronchitis. The urine was clear and free from albumin. The patient complained of a feeling of unrest which was difficult to control, of great thirst, of want of breath, and of weariness from want of sleep. He also complained of a sensation of oppression in the region of the heart which I should call præcordial discomfort; it never became so severe that the term "præcordial anguish" or its equivalent angina pectoris would have been applicable. If it was thought desirable to use the word "angina," which would correspond to the English word "anguish," the case might be called one of "angina sine dolore." Notwithstanding the general severity of the symptoms the patient never had the impression that he was in imminent danger of death. The absence of angina pectoris did not necessarily imply that his coronary arteries were intact, for as Dr. Morison has correctly remarked in THE LANCET of Nov. 1st, 1902, p. 1176, "the grossest atheromatous and calcareous changes may be met with in those vessels without their having elicited during life any feature in the syndrome of angina pectoris." The patient was kept at perfect rest until he could be removed to the low ground in a carriage, he had easily digestible food and stimulants (Bordeaux) in small quantities, and he also took camphor internally. The subsequent history of the case was as follows. The journey to Montreux was accomplished in safety, but there was little improvement in the patient's condition notwithstanding the most absolute rest, clearing of the bowels by an enema, and stimulation of the heart by camphor. The dyspnœa did not decrease, the heart beats went steadily down from 50 to 46, 42, 38, 34, and 32 per minute; the cyanosis and dilatation of the right side of the heart became worse. After two powders containing two grains of camphor and one grain of powdered digitalis, which were administered for the purpose of testing the reserve force of the heart, it made 64 or 70 contractions per minute for a couple of hours, but the pulse remained at 32 or 35 per minute, bradycardia being thereby distinctly manifested. Hydrotherapy could not be resorted to except in the form of hot fomentations applied to the præcordial region, since on account of threatening thrombosis of the heart the patient had to be kept almost immoveable on his back. I caused him to perspire freely by administering small cups of hot tea made with juniper leaves, but this relieved him for only a couple of hours.

Professor de Mićville of Lausanne saw the patient with me on Sept. 13th. He confirmed my diagnosis in every respect and also considered the prognosis to be unfavourable in the extreme. He was of opinion that the liver was not merely congested (*Stauungsleber*) but that there probably were pre-existent changes of an inflammatory nature, as the liver felt too hard for mere engorgement; this view seems, however, to have been proved erroneous by the sequel. He recommended stimulation, camphor, wet and dry cupping, and the administration of morphia in doses of one-tenth of a grain for the purpose of controlling restlessness and promoting sleep. The patient's state went, however, from bad to worse. A double venesection (the median vein being opened in the forearm) somewhat relieved the heart owing to the removal from the engorged venous system of more than five ounces of dark blue blood which coagulated very rapidly and was under

the very highest pressure. A hypodermic injection of one-eighth of a grain of morphia brought no relief and Cheyne-Stokes breathing, which is of no good augury in such cases, supervened. The vital centres in the medulla were becoming affected owing to their being supplied with an insufficient amount of oxygen. At 4 A.M. on Sept. 15th the patient, although perfectly conscious, was in the utmost degree of collapse. His features were yellowish and pinched, his nose and lips were cyanosed, his arms and legs were quite cold, and the pulse was imperceptible or no pulse could be felt. His respirations were of the Cheyne-Stokes type and eight per minute; his heart beats were 22 per minute. His general state reminded me of the comparable conditions which may be observed both in adults and in infants—in adults suffering from Landry's creeping paralysis in the last stage (a case of which I described some years ago in the *Correspondenzblatt für Schweizer Aerzte*) and in infants suffering from the acute heart failure which sometimes follows diphtheria. In order to relieve him I gave a hypodermic injection of one-third of a grain of morphia. He fell asleep in half an hour; the cardiac collapse increased and cold perspiration made its appearance, but in an hour his pulse returned (25 beats per minute) and in three hours he woke up asking for something to eat. After this he slept with but few interruptions for 24 hours, waking spontaneously at intervals of three or four hours, taking food, and then falling asleep again. He was saved. The cyanosis had improved, the heart boundary had receded by almost half an inch, and the pulse-rate increased from 25 to 30, 40, 50, and then 60, the pulse and the heart beat acting together.

As a new complication hæmaturia set in, first five and then about eight ounces of pure blood being passed instead of urine. I thought that there might be an embolus in one kidney, but in this I was mistaken. Most probably the hæmorrhage came from dilated blood-vessels in the kidneys, bladder, and even the prostate gland, for the *engouement* of the venous system was enormous, as proved by the distension of the liver. The action of the heart rose to 78, it became intermittent (for the first time), every sixth beat failing, and a systolic murmur was heard over the mitral valve. This was attributed partly to anæmia, but was also partly due to the acute dilatation of the muscular tissue of the heart. I took leave of the patient on Sept. 18th when he was no longer in imminent danger.

Dr. Vuilleumier of Territet-Montreux kindly supplied me with a *résumé* of notes giving the further history of the case. The heart's action was maintained at the rate of 80 or 90 beats per minute; the hæmaturia recurred several times and in large quantities; only traces of albumin and a few hyaline tube casts (*hyaline Cylinder*) were discovered after repeated and very careful examination. On Sept. 23rd the patient was allowed to sit up in bed. As was to be expected considerable hypostasis was found in the lower lobes of both lungs, together with catarrh. There were no symptoms of pneumonic infiltration; the temperature never exceeded 99° F. On Oct. 6th the border of the heart only reached the middle of the sternum—the *status quo ante* being thus restored after a month—and the liver no longer overlapped the border of the ribs. The patient left for home on the 14th, having previously had a carriage-drive on two occasions. I saw him in Zürich on the 18th and made notes to the following effect. His face was unusually pale but there was no longer any cyanosis. His heart beat quite regularly at the rate of 96 per minute; a soft systolic murmur over the apex of the heart still persisted; the second sound over the aorta was accentuated. The heart did not reach the right border of the sternum; the liver had receded under the ribs. The urine amounted to two pints in 12 hours and was of normal colour. There was still hypostasis in the lowest lobe of the right lung and there were humid râles to be heard. I recommended the patient to allow himself much rest and to retire from business life. He was recommended to practise deep breathing methodically two or three times a day whilst lying on his *left* side; the intention of this was to promote the entrance of air into the right lung. He was advised to have a uniform temperature maintained in the rooms in his country house, as he declined wintering in the south. I ordered him pastilles of "fersan," a new iron preparation which gives me excellent results in anæmia. I sent a detailed account of his illness to his family physician. The patient had indeed proved the verity of Haller's dictum, that the heart is the *ultimum moriens*.

I think that it follows clearly from this detailed account and my deductions that the patient in question owed the acute dilatation of his heart to the railway trip. A healthy heart might resist such rapid differences of altitude, one with chronic degenerative changes could not. It must also be remembered that the congestive conditions in the venous system due to varicose veins and the emphysema of the lung predisposes the patient to such an affection. There is neither any proof nor any reason to suppose that any considerable distension of the heart existed before. The fact that the heart resumed its normal dimensions is a further fairly convincing proof, but some damage obviously resulted to the heart. A report dated Nov. 18th read as follows: The hypostasis was gone, the heart murmur had disappeared, but the heart beats still varied between 80 and 90 per minute. The patient has passed a good winter and is in his usual health. I met him at a dinner party in March, 1903. I cannot tell why the hypodermic injection of a large dose of morphine acted so promptly and satisfactorily. Of course, the rest procured by sleep must not be underrated. Then, perhaps, the muscle of the heart dilated partially at maximum lost some of its *active* contractility, and thus got space for more energetic contractions to overcome the existing obstacles in the circulation. The bradycardia was most probably of muscular origin. Of late it has become usual to refer the rhythmic action of the heart principally to the muscle[10] and to speak of automatic action. Zuelzer[11] remarks that the conception of the independent action of the muscle of the heart has gained ground in pathology since von Leyden's work on the subject and that the rhythmical contraction of the heart depends on the condition of the muscle, its susceptibility to influences (*Erregungsfähigkeit*), and capacity of conduction (*Leitungsfähigkeit*). Bradycardia on a *nervous* basis is out of the question. As soon as the dilatation of the muscle became relaxed the bradycardia ceased; this sufficed to establish the connexion between the disturbance of the rhythm of the heart and muscular lesion. A great many questions of interest have been barely referred to in this paper, which must be reconsidered in the light of physiological experiments and clinical reports. If my incomplete deductions stimulate others to study this question of practical importance it will have accomplished all that I desire.

Zürich.

ON THE DISCOVERY OF A SPECIES OF TRYPANOSOMA IN THE CEREBRO-SPINAL FLUID OF CASES OF SLEEPING SICKNESS.[1]

BY ALDO CASTELLANI, M.D. FLORENCE.

ON Nov. 12th, 1902, when examining a specimen of cerebro-spinal fluid taken by lumbar puncture during life from a well-marked case of sleeping sickness, I was surprised to observe a living trypanosoma. Since that date I have made as many observations in this direction as possible and the results are, to my mind, sufficiently surprising to excuse me for presenting this preliminary note. These trypanosomes do not occur in large numbers, so that to find them it is necessary to draw off at least 15 cubic centimetres of the cerebro-spinal fluid. It is better to reject the first few cubic centimetres as they are apt to contain blood. When the fluid comes away clear 10 cubic centimetres are collected and centrifuged for 15 minutes. At the end of this time there is found at the bottom of the tube a slight deposit of whitish sediment and in some cases also a minute trace of blood. The liquid above the sediment is poured off and the sediment is examined under a moderately low power of the microscope. As the trypanosomes are at first fairly active they are easily detected.[2]

In 34 cases of sleeping sickness the trypanosomes were

[10] See von Leyden: Kurze Kritische Bemerkungen über Herznerven, Deutsche Medicinische Wochenschrift, 1898.

[11] Berliner Klinische Wochenschrift, 1900.

[1] Communicated by the Malaria Committee of the Royal Society, dated "Entebbe, Uganda, April 5th, 1903," and read before the society on May 14th, 1903.

[2] With the original paper were two tables which we have not printed owing to lack of space. The summary in the text gives all the needful points.—ED. L.

found in the cerebro-spinal fluid taken by lumbar puncture during life in 20 cases. On two occasions I also examined in the same way fluid from the lateral ventricles and in both cases found the same parasite. In blood I found the trypanosoma once with certainty; only a few patients were tested. It may be thought that the trypanosomes are found in the cerebro-spinal fluid on account of the trace of blood which sometimes forms part of the sediment. But in several cases there was no trace of blood. In 12 cases of ordinary disease the cerebro-spinal fluid taken during life by lumbar puncture in no case contained trypanosoma and it is important to note that three of these controls were cases of the usual trypanosoma fever, as described by Forde, Dutton, Manson, Daniels, and others. Here it may be remarked that trypanosoma fever is by no means uncommon among the natives in Uganda, three cases having been met with by Dr. Baker, one of the colonial surgeons here (Entebbe), within a period of three weeks. I understand that Dr. Baker is publishing this most interesting observation. It must be clearly understood that these cases of trypanosoma fever bear no resemblance in their clinical features to sleeping sickness.

The trypanosoma found in the cerebro-spinal fluid of sleeping sickness does not, as far as I have been able to make out, differ materially in size and shape from the species one finds in the blood of trypanosoma fever, trypanosoma Gambiense (Dutton), but possibly it is to be differentiated from this one, because, as a rule, the micro-nucleus lies nearer the extremity and the vacuole is apparently larger. Besides, its movements are not apparently so active, but this fact might be due to the effects of the centrifugation. In case it should prove to be a new species, the trypanosoma which I have described might be called from the country where I have found it first—trypanosoma Ugandense.

Relation of the trypanosoma to sleeping sickness.—At the post-mortem examination of 80 per cent. of the cases where I found the trypanosoma during life, I grew from the blood of the heart and from the liquid of the lateral ventricles the variety of streptococcus which I described many months ago in my first note. Up to that time I had never found the trypanosoma, but this is easily explained by the fact that I did not use the technique which I have described in this note—viz., examination of a *large* quantity of liquid after a long centrifugation. Influenced by my last investigations I would suggest as a working hypothesis on which to base further investigation that sleeping sickness is due to the species of trypanosoma which I have found in the cerebro-spinal fluid of the patients in this disease and that at least in the last stages there is a concomitant streptococcus infection which plays a certain part in the course of the disease

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Note by the Secretary of the Royal Society.—As so far supporting the observations by Dr. Castellani recorded in the above communication, it may be desirable to state that Colonel D. Bruce, R.A.M.C., to whom in Uganda Dr. Castellani made known his discovery of the trypanosoma and who is now continuing the investigation begun by Dr. Castellani, has sent to the Royal Society a telegram, received May 4th, stating that since Dr. Castellani left, in 38 cases of sleeping sickness he had found trypanosoma in every case in fluid obtained by lumbar puncture and that he had found trypanosoma in the blood in 12 out of 13 cases of sleeping sickness.—MICHAEL FOSTER.

CASE OF CHOREA GRAVIDARUM TREATED BY INDUCING ABORTION.

BY JOHN BENJAMIN HELLIER, M.D. LOND.,

HONORARY OBSTETRIC PHYSICIAN TO THE LEEDS INFIRMARY; LECTURER ON DISEASES OF WOMEN AND CHILDREN IN THE YORKSHIRE COLLEGE.

CHOREA gravidarum is by no means a common condition. Buist,[1] in his most careful statistical review published in 1895, had been able to collect 226 cases. In only 20 of these had delivery been induced. Hence an account of the following case, for the notes of which I am indebted to Mr. H. Tomlin and Mr. C. T. Matthews, may be of interest.

[1] Transactions of the Edinburgh Obstetrical Society, 1894–95.

The patient, a married woman, aged 23 years, residing in the country, was admitted into the Leeds Infirmary on Dec. 1st, 1902, being about four months pregnant and suffering severely from chorea. She had lived in adequate circumstances and had always had good food and up to three years before she had enjoyed good health. Her family history was good, there being no record of rheumatism or chorea. Three years before the patient had had an attack of rheumatism which kept her in bed for three or four days, her hands and feet being swollen and painful. From this she recovered and had no recurrence. She was married in February, 1901. During her first pregnancy she had much vomiting but no other symptoms. Her first confinement took place on Dec. 5th, 1901, when a living male child was delivered by forceps and has since thriven well. Since that time she had been short of breath and had not been able to work so hard as previously. She did not suckle the child, having no milk. She ceased to menstruate at the end of August, 1902. In the early weeks of pregnancy there was no vomiting but she felt unduly tired. She dated her present attack from about the end of October. She felt increasing weakness and her husband noticed her altered facial expression. Choreic movements were marked about the middle of November and she also complained of difficulty in sleeping. She sought medical advice on Nov. 27th and was sent to the infirmary on Dec. 1st, being admitted into the medical wards under the care of Dr. A. G. Barrs. On account of her restlessness and noisiness she was placed in a private ward.

On admission she was found to be a young woman of medium stature, not badly nourished and showing the usual signs of pregnancy at four months. She manifested violent choreic movements of the arms, the head, and the face, and to a less extent of the legs and trunk. She was intelligent and cheerful and though she spoke with a hurried and whispered voice she could articulate fairly well. There was some swelling of the left wrist but she had no pain. The pulse was 120, small, and difficult to feel because of the choreic movements. The respirations were about 30 and the temperature was not above 99° F. The lips were red and not dry, the tongue was moist, and the fauces were congested and sore. Physical examination of the chest showed no abnormality in the lungs, but there was a slight presystolic thrill at the apex of the heart with a double bruit. There was also a systolic bruit over the pulmonary artery with accentuation and occasional reduplication of the second sound. The patient was treated medically for ten days with chloral and bromide, with paraldehyde and with trional and then with chloral and bromide again, receiving in 24 hours as much as 90 grains each of bromide of potassium and chloral.

For the first seven days after admission there was no very marked change in her state; sometimes the movements were violent, sometimes she was quieter. She slept on the aggregate for four or five hours in the 24 and took food fairly well. On Dec. 5th Dr. Barrs asked me to see the case and we agreed that unless improvement was manifested shortly the pregnancy ought to be terminated. On the 9th and 10th it was evident that the patient was worse. The pulse increased to 140 and the respirations to 32; the temperature rose to 101·2°. The patient became more restless, talked incessantly, and was slightly delirious at night. The speech had become thick and the articulation less distinct. The tongue was coated and dry and the lips were sore. It was very difficult to feed the patient, although occasionally she took food well. She slept very little. She was now transferred to the gynæcological ward and Dr. H. Brown, the resident obstetric officer, took charge of the case.

On Dec. 11th, at 4 P.M., the patient was anæsthetised with chloroform and placed in the lithotomy position. The genitals were shaved and carefully disinfected. The cervix was drawn down with volsellum forceps and a sterilised bougie was passed entirely into the uterus without rupturing the membranes. The vagina was then packed with iodoform gauze. The patient had a comparatively quiet night. The fœtus and placenta were expelled about 7 A.M. on the 12th, or 15 hours after the bougie had been inserted. There was no post-partum hæmorrhage. The labour pains did not cause any marked increase of the choreic movements. The fœtus, a male with well-differentiated genitals, measured 17·5 centimetres. It was of about 21 weeks' development.

For the next three days there was no improvement. The movements became violent two hours after labour and continued so. The tongue was dry and coated and there were

sordes round the lips. The temperature varied from 100·5° to 102° and the pulse was very rapid, reaching 150 or even 160. There were no signs of uterine or pelvic mischief. She was unable to answer questions. On the 14th she had a very quiet night, the movements being very slight. On the 15th the patient was very restless and was ordered 30 grains of chloralamide every four hours. She slept for eight hours on the night of the 16th. She had a morbilliform rash over the face, the arms, and the chest. The choreic movements were marked but were certainly better. On the 19th the patient was very much better, the temperature being normal and the pulse 102. The rash was gone and the uterine condition was normal. On the 22nd she had greatly improved and was removed from a private ward to the ordinary ward. She was almost free from choreic movements, her mind was clear, and her speech was much better. The bruit was almost gone from the pulmonary artery. There was still a double bruit at the apex, but this was less marked; there was also a slight presystolic thrill. On the 23rd she was ordered five minims of arsenical solution three times daily. On the 28th she was able to feed herself and was taking 40 grains of chloralamide in the 24 hours. She was able on the 29th to thread a needle and to write her name fairly well. On the 30th the chloralamide was omitted and on Jan. 20th, 1903, she was discharged cured and with no choreic movements. Since her discharge she has attended at the infirmary occasionally as an out-patient. She continues well but there are some hypertrophy of the heart and some mitral incompetence.

When the patient was transferred to my care she was certainly in a very critical condition and in the opinion of both Dr. Barrs and myself the indications were strong for terminating the pregnancy. The chorea of pregnancy depends upon a condition of toxæmia. The pregnant state fosters the toxæmic condition and renders it very little amenable to treatment by drugs. To terminate the pregnancy seems a rational method of treatment. Its effect cannot be expected to be instantaneous but may develop in two or three days. The logical demonstration of the effect of inducing delivery is impaired by the fact that chloralamide was given, and given with obvious benefit, on Dec. 15th and onwards. In my opinion the improvement began before this and the patient, who had previously derived no apparent good from drug treatment, now benefited at once. At the same time I admit that chloralamide had not been tried before delivery. Still chloral and bromide had been pushed to the full and the patient was getting worse. There is practically no doubt that inducing abortion saved her life.

Chorea gravidarum is not an essentially incurable disease. Mild cases occur from time to time which clear up without serious trouble and even marked cases may recover and go to full term, but it is a very serious complication of pregnancy and if the mortality is not so high as was formerly estimated—as by Dr. Barnes who found 20 deaths in 68 cases (29·4 per cent.)—it is still very high. Buist estimates it at 17·5 per cent., Kroner at 22 per cent., and Spiegelberg[2] at 26·9 per cent. The presence of endocarditis, as in this case, is a serious factor in prognosis. No one suggests that artificial delivery is the routine treatment for all cases, but it is the treatment to be applied when chorea gravidarum threatens life. When the movements are slight, when the patient can eat and sleep well and maintains her weight, when the pulse is under 100 and there is no pyrexia, or when confinement to bed suffices to keep the patient fairly quiet and comfortable, then there are no indications for radical measures. When, on the other hand, the movements are violent and continue so in spite of rest in bed and drug treatment, when the patient cannot sleep or take food enough and is losing weight, when the mental condition is confused and there is a tendency to delirium, when there are a rise of temperature and a dry tongue, and especially when the pulse is persistently above 100 and is becoming weaker and more rapid, then the indications are complete and absolute. One thing more, however, must be said. If we wait for indications as complete and absolute as these we may find that we have waited too long. The attempt to save the fœtus may lose the patient. In chorea gravidarum, as in hyperemesis gravidarum, the cases which require interference require it in good time. In my next case I shall not wait so long as I did in the one under consideration.

As a matter of technique I greatly prefer in such a case induction of abortion by stimulating the physiological action of the uterus to a forced mechanical delivery at one sitting. Some mechanical dilatation may be useful to complete delivery, but a preliminary setting up of uterine action by the bougie is of great advantage. The fact that we have now powerful rapid mechanical dilators available does not alter this opinion.

Leeds.

[2] See article by Hirsche in the Monatsschrift für Geburtshülfe und Gynäkologie, January, 1903. (An abstract of this article appears in the Journal of Obstetrics and Gynæcology, April, 1903.)

A SIMPLE EXPEDIENT IN THE ESTIMATION OF SUGAR BY THE COPPER REDUCTION METHOD.

BY S. ARCHIBALD VASEY, F.I.C., F.C.S.

FROM time to time the original method devised by Fehling for the estimation of sugar has been modified in some way or other, chiefly with the view of making the end of the reduction process more accurately and easily observable. It is probable that accuracy is more likely to ensue when the reagents are kept as near simplicity as possible. The modifications of Fehling's original processes have consisted in the addition of reagents in which the reduced copper is soluble, so that the blue colour is discharged by the addition of the sugar solution, a clear colourless solution being finally obtained. Thus Pavy suggested adding strong ammonia and Gerrard cyanide of potassium to the Fehling mixture. Both modifications present advantages when operating upon certain fluids with sugary contents. Pavy's method works well and gives accurate results for all ordinary purposes in the case of estimating milk sugar directly in milk or glucose in urine, but the results are variable according to the ammoniacal strength of the copper solution, and it is hardly possible to keep this constant, since the solution must be used boiling. Then the ammonia fumes are troublesome. Gerrard's cyanide process has no objections of this kind but it is somewhat complicated and involves the employment of a solution of potassium cyanide which is not stable. The process, however, is accurate.

As is well known, the drawback to the original method of Fehling is the formation and suspension of red cuprous oxide in a blue solution. The oxide is so fine that it is slow to separate and to agglomerate and thus it is difficult to mark exactly when all trace of the blue colour has disappeared or, in other words, when the whole of the copper is in the insoluble condition of cuprous oxide. It occurred to me that instead of adding a reagent to form a soluble compound with the cuprous oxide as it is produced, as in Pavy's and Gerrard's processes, an inert powder, preferably of a clear white colour, might be employed so as to entangle the precipitated oxide and carry it rapidly to the bottom of the solution and thus to leave a clear liquid above in which the faintest trace of blue could be seen. I subsequently found that precipitated chalk and later barium sulphate fulfilled this idea admirably. Lead or aluminium salts are obviously inadmissable. I now proceed as follows. To the measured quantity of Fehling's solution (generally ten cubic centimetres) suitably diluted I add about two teaspoonfuls of finely precipitated calcium carbonate or barium sulphate. The mixture is then raised to the boiling point, being gently stirred with a glass rod during the whole time. The solution in which the amount of sugar is required to be known is then run in after the usual manner. It will be found that the red cuprous oxide will be deposited upon, and evenly distributed through, the chalk slime or the barium sulphate which rapidly subsides, so that the true colour of the clarified supernatant liquid is quite easily seen. In this way the exact point of transition from a trace of blue colour to a colourless solution can be sharply noted. The process is rapid and extremely accurate according to a number of estimations made by me with standard solutions of sugar, diabetic urines, wines, and other sugary fluids, and it certainly has the merit of simplicity. This modification I feel sure will be found to be very convenient in clinical practice.

Bromley, Kent.

PRELIMINARY NOTE ON THE USE OF CHLOROFORM IN THE PREPARATION OF VACCINE.[1]

BY ALAN B. GREEN, M.A., M.D. CANTAB.
(From the Government Lymph Laboratories.)

IT is well known that glycerine exerts an action on vaccine whereby the extraneous bacteria are eliminated in the course of a few weeks, while the specific germ undergoes no undue deterioration from the process. I have found that by the use of a solution of chloroform in distilled water the extraneous bacteria of vaccine are eliminated in from one to six hours, the specific germ remaining fully potent for vaccination. The solution of chloroform that can most advantageously be employed in the preparation of vaccine is a saturated solution in distilled water, having a strength of 1 in 200. This is the limit of such solubility.

The following method of using such solution has so far given the best results. Vaccine emulsion is first prepared by triturating vaccine pulp with distilled water. *The presence of the water is essential* in order that later chloroform may enter into solution with it. About three parts by weight of water should be mixed with one part by weight of pulp. Should a more viscid emulsion of vaccine be desired glycerine may be added without interfering with the action of the chloroform. I have found that the usual admixture of one part by weight of vaccine pulp and four parts by weight of a solution consisting of equal parts by weight of glycerine and water forms a perfectly suitable emulsion for this process. But glycerine is incapable of dissolving chloroform and the elimination of extraneous bacteria by this chloroform process is solely due to the action of chloroform water. Indeed, when the addition of glycerine to the vaccine emulsion is desired, it can be very advantageously effected after the completion of the process. The newly made vaccine emulsion to be subjected to the action of chloroform is dealt with in the following way. Sterile air is first passed through pure liquid chloroform, whereby this air becomes charged with chloroform vapour. This mixture of air and chloroform vapour is then passed through the vaccine emulsion, which is contained in a cylindrical glass vessel of test tube shape and in size suitable to the quantity of vaccine to be treated. The mixed chloroform vapour and air can be passed seriatim through a number of tubes of vaccine before it finally escapes into the outside air, and it is efficient for all of them, provided that the current be sufficiently strong to keep the contents of each tube in active movement, and that a distinct smell of chloroform be apparent at the outlet of the last tube of the series. It is essential that no liquid chloroform be allowed to pass over into the vaccine, as its presence is strongly inimical to the potency of the lymph. To obviate the chance of such an accident an overflow bottle, weighted with sterile sand, is interposed between the bottle of liquid chloroform and the tube or tubes of vaccine emulsion. By passage through it of chloroform vapour and air the water of the vaccine emulsion quickly becomes saturated with chloroform and this strength of solution is maintained so long as such passage is continued. When saturation is reached all excess of chloroform immediately escapes automatically from the vaccine. Thus the vaccine is not at any time brought into contact with a stronger solution of chloroform than 1 in 200 in water.

A rapid and marked germicidal action is exerted on the non-spore-bearing extraneous bacteria of vaccine thus treated. The extraneous bacteria most commonly found in vaccines at the Government laboratories are staphylococcus pyogenes aureus, staphylococcus pyogenes albus, staphylococcus cereus flavus, and staphylococcus cereus albus. Others which occur either in smaller numbers or less commonly are staphylococcus pyogenes citreus, proteus vulgaris, streptococcus pyogenes, sarcina lutea, and some yeasts. Emulsions which have contained as many as 100,000 extraneous micro-organisms per platinum loopful at the time of mixture have, by the action of chloroform water, become free from their presence in from one hour to six hours. This freedom is evidenced by absence of bacterial growth in aerobic and anaerobic plate cultures. The germicidal action is first exerted on the least resistant members of each species of organism present in the vaccine. Generally after the first hour or one and a half hours of the process a very few of the more resistant staphylococci—aureus and albus—remain alive; these give rise to small inhibited colonies in plate cultures and these organisms succumb in their turn after further application of the process.

By contrast, elimination in like degree of the extraneous micro-organisms of vaccine by the glycerine process rarely occurs before the fourth week after mixture and is frequently not complete until a much later period, as shown by similar plate cultures. After elimination of extraneous bacteria from chloroformed vaccines the chloroform is evaporated until no trace remains. Such evaporation is most quickly effected by passing a stream of sterile air through the emulsion.

By the above method vaccine can be brought under the influence of the germicide for such time only as suffices to kill the extraneous micro-organisms. At present, however, there is no evidence to show that more prolonged contact with 1 in 200 watery chloroform solution has any harmful effect on its potency. As in the case of glycerine, non-spore-bearing bacteria in vaccine lymph are alone killed by this process. But in some thousands of vaccines examined at the Government Lymph Laboratories the only spore-bearing organisms found in vaccine were the strictly non-pathogenic organisms of the mesenteric group—bacillus mesentericus vulgatus, bacillus mesentericus fuscus, bacillus mesentericus ruber, and bacillus subtilis—and equally non-pathogenic moulds such as penicillium glaucum.

The practical working value of the foregoing method has been clearly shown by results of vaccinations performed with vaccines which have been thus subjected to the action of chloroform. These vaccines, having been rendered free from extraneous micro-organisms, were first tested on calves and were found to give excellent results. Within a fortnight after collection from the calf and of subjection to the action of chloroform water, such vaccines have been used (after evaporation from them of all chloroform) for primary vaccinations and revaccinations with results of high "case" and "insertion" success. It would seem, therefore, that the following considerable advantages are to be gained by the use of the chloroform process:—

1. So speedy an elimination of extraneous micro-organisms is attained that vaccine, practically free from such organisms, can be distributed for use within a few hours of its collection from the calf. In times of urgent demand for large quantities of vaccine, such as occur during small-pox epidemics, this process must needs prove of great value, since the necessity for wasting some weeks for elimination of extraneous organisms by glycerine will be done away with.

2. In so far as the vaccination value of vaccine depends on the activity of a living organism deterioration of that value must occur in the course of a longer or shorter time. The potency of some vaccines, glycerinated or otherwise, becomes greatly impaired within a few weeks of collection—that is, within the time required for glycerine to exert fully its influence in eliminating extraneous organisms. Some of these vaccines may, at the time of their collection, have possessed a high vaccination value. Vaccine, characterised by this high but somewhat transient potency, can by means of the chloroform process be used at once before its activity has deteriorated, thus allowing greater economy of vaccine material than would otherwise be possible.

3. For a similar reason the chloroform process might be of considerable use in hot climates where the preservation of the potency of vaccine is frequently a matter of considerable difficulty.

Experiments are at present being made to test the duration of the potency of chloroformed vaccines. A further account of this process will be given in the report for 1902-03 of the medical officer of the Local Government Board.

In conclusion, I wish to express my indebtedness and thanks to Dr. F. R. Blaxall for the generous help and advice which he has given me. My thanks are likewise due to Mr. H. S. Fremlin, with whom I am also associated in the work of these laboratories, and to Mr. S. D. Rowland of the Jenner Institute of Preventive Medicine for help afforded me.

[1] A paper read before the Royal Society on April 30th, 1903.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A NOTE ON SOME STATISTICS OF CANCER IN INDIA.

BY C. N. SALDANHA, G.M.C.M., F.A., F.SC., IND. UNIVERSITY.

As regards the difference of opinion as to the relative racial prevalence of cancer, the following figures taken from the annual report of one of the Indian life assurance offices may be of some interest, though they are not sufficiently large to warrant deducing a final conclusion therefrom. Out of a total of 401 deaths among the assured 313 occurred among Hindoos, two of which were due to cancer, and out of 42 deaths among Europeans or Eurasians three were due to cancer. There were 36 deaths among Parsees, one being from cancer. Among Mahomedans there were only ten deaths and none from cancer. The cancer-rate to total mortality among the first three communities was respectively 0·6, 7·0, and 2·8 per cent.—i.e., a ratio of 12 Europeans and four and a half Parsees to one Hindoo.

As regards the comparative rarity of cancer of the stomach among the Hindoos, as was reported or assumed to be the case by several correspondents during the discussion on the subject in the columns of THE LANCET some time ago, I will mention some dietetic peculiarities of that community. I am, however, suggesting no relation of cause and effect. All underdone meat and sausages, ham, cheese, and canned foods, are not popular among the Hindoos, nor among the Mussulmans for that matter. Cold meats and cold rice is not *comme il faut* among Hindoos. All meals are entirely fresh cooked: there is no stock-pot. It is only the cakes and sweetmeats that are held over for a few days. Jams, pickles, and chutnies are home-made—i.e., each family makes their own supply or are presented therewith by relatives and friends.

The accompanying table shows, for each of the various races, the amount of the claims by death from cancer paid during 1901.

Disease.	Hindoos (402 policies.)		Europeans and Eurasians (54 policies.)		Parsees (52 policies.)		Mahomedans (17 policies.)		Total (525 policies.)	
	Lives.	Amount.	Lives.	Amount.	Lives.	Amount.	Lives.	Amount.	Lives.	Amount.
		Rs. a.p.		Rs. a.p.		Rs. a.p.		Rs. a.p.		Rs. a.p
Cancer...	2	3047 0 0	3	6259 9 8	1	5374 0 0	—	—	6	14,680 9 8

Hammersmith.

A CASE OF LEUKÆMIA WITH CHANGE OF TYPE IN THE APPEARANCES OF THE BLOOD.

BY ROBERT WILKINSON, M.D. BRUX., M.R.C.S. ENG., L.R.C.P. LOND.

THE case is that of a married woman, aged 35 years, whose previous health had been excellent. The symptoms of the present illness came on insidiously about December, 1901, in New Zealand and chiefly consisted of gradually increasing weakness and loss of weight. A few months later enlargement of the spleen was discovered by her medical attendant, but up to the time of coming to England she had little medical attention and no regular course of treatment. In April, 1903, she started for England and during the voyage became much worse, having to be landed at Marseilles and brought overland to Calais. She arrived in England in a dangerously depressed condition and was first seen by me on May 4th, when her condition was as follows. She was cachectic-looking, with rapid, feeble pulse (120 per minute). The temperature was 102·4° F. She was very drowsy. Her appetite was fairly good. Great enlargement of the spleen was present which extended across the middle line, the lower border reaching below the level of the left iliac crest. The liver was enlarged and palpable three inches below the costal margin. There was no ascites. The heart and lungs were normal. No sensory or motor abnormality was present; the knee-jerks and other reflexes were normal. There were no enlargement of the lymphatic glands and no tenderness of the sternum or other bones. Pronounced menorrhagia was present as well as one or two small ecchymoses of the skin. The pupils were normal and sight was unimpaired. There were copious retinal hæmorrhages and swelling of the optic discs. The urine had a specific gravity of 1015; there was no albumin or sugar but there was an excess of urates.

An examination of the blood was made on May 15th by the Clinical Research Association and the following is the *verbatim* report:—"Number of red blood cells equalled 1,155 000 per cubic millimetre; number of white blood cells equalled 560,000 per cubic millimetre—that is to say, while the red blood cells are only one-fourth to one-fifth of the normal, the white cells are increased to almost 100 times the average number. The films show a condition of blood absolutely pathognomonic of very advanced myelocytæmia. There was much polymorphism of white cells and one kind shaded so insensibly into the other that any accurate differential count was impossible. In addition to a marked absolute increase of all kinds of white cells, the most characteristic feature was the presence of enormous numbers of myelocytes which were frequently of great size. And as a peculiar feature of this blood, lymphocytes were quite as numerous as myelocytes and there was every gradation between the two. Polynuclear cells were relatively less abundant but the relative proportion of eosinophiles and mast cells was above the average. Another feature was the presence of nucleated red cells in very large numbers. There were both normoblasts and megaloblasts but the latter predominated. The case is of great interest and is the most pronounced myelocytæmia we have yet encountered."

In spite of most careful nursing and gradually increasing doses of liquor arsenicalis, &c., the patient became rapidly worse and on May 17th Dr. J. Purves Stewart was called in consultation and gave a very bad prognosis. On the 23rd, eight days after the first blood examination, the blood was again examined by Dr. Purves Stewart who had the advantage of Dr. W. S. Lazarus-Barlow's opinion. Dr. Lazarus-Barlow found that there was now a typical and extreme lymphocytæmia, though here and there a myelocyte was visible. On subsequent comparison of the two films it was clear that the type of the abnormal leucocytes present in the blood had undergone a complete change which was obviously in actual progress at the time when the first blood examination was made. The patient quickly sank and died early on the morning of the 24th. Left hemiplegia came on gradually three days before death and the temperature, which had been of the irregularly remittent type, rose to 104·4° at the end. No necropsy was obtained.

The above case is worthy of being reported on account of the unusual change occurring in the blood of a case of what was apparently a pure spleno-medullary leukæmia. The complete absence of lymphatic hypertrophy was itself as conspicuous as the positive enormous enlargement of the spleen that obtained. It seems probable that this is one of those very rare cases, similar to those recorded by Seelig[1] and van der Wey,[2] in which a pre-existing myelocytæmia towards the end of life changed its type to that of lymphocytæmia.

Upper Norwood, S.E.

NOTE ON AN OUTBREAK OF MALARIA ON BOARD SHIP.

BY J. BELL, L.R.C.P. LOND., M.R.C.S. ENG.,
SUPERINTENDENT OF THE GOVERNMENT CIVIL HOSPITAL, HONG-KONG.

THE following account of a serious outbreak of malaria at sea may be of interest.

Two Russian torpedo-boat destroyers left home for the Far East in October last. They touched at Colombo, leaving there on April 19th for Sumatra. At this port they were anchored close to the shore and the crews were allowed leave. The

[1] Deutsches Archiv für Klinische Medicin, 1895, Heft 6.
[2] Archiv für Klinische Medicin, Band lvii., S. 287.

destroyers left on the 19th for Singapore, at which port none of the members of the crews were on shore and the boats were anchored a long way off land. On the 23rd they left for Hong-Kong, the health of the crews so far being good. On May 1st and 2nd several of the men were suddenly taken ill with high fever, headache, furred tongue, and in a few cases vomiting. Out of the total crews of 58 men 21 were affected. On the 5th these men were brought to the Civil Hospital, Hong-Kong, and were at once isolated, as the medical officer reported them as cases of "malignant influenza." Their symptoms were much the same as when first attacked, the temperature varying between 100° F. in some cases and 104° in others. The routine blood examination at once settled the diagnosis. They were all teeming with malarial parasites, in the majority of cases (18) of the malignant type and in a few of the simple tertian variety.

The disease was no doubt acquired at Sumatra, which would give an incubation period of over 13 days, and was in all probability acquired on shore, as the captain informs me that he noticed no mosquitoes on board either boat. Under quinine all the patients recovered.

Hong-Kong.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum allorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

FRENCH HOSPITAL.

A CASE OF PURPURA FULMINANS.

(Under the care of Dr. GEORGE OGILVIE.)

THE patient, a French boy, aged 16 years, was admitted into the French Hospital on July 29th, 1902, with the following history. On July 26th he went for a bathe in the Serpentine at 7.30 P.M., remained in the water for a quarter of an hour, and came out feeling cold. Small purpuric spots appeared two days after on the left side of the neck and legs, and also on the tongue, and he also coughed up a small quantity of blood. These spots gradually increased in number and size, and he was sent to the hospital on the 29th. The family history showed no signs of rheumatism or syphilis, but the boy's uncle on his mother's side used to suffer from profuse epistaxis which was very difficult to control. The boy's personal history showed that he had always suffered more or less from epistaxis, and there was also a history of his being unable to stop the bleeding from a cut finger for three days.

On admission the boy was absolutely covered from head to foot with purple spots; they were more marked on the left side, varying in size from that of a pin's head to that of a shilling piece, and were most abundant on the face and neck and legs and ankles. Some spots were also visible on the inside of the cheeks and lips, and the tongue was covered with a large purple "plaque," causing it somewhat to resemble a case of "black tongue." There was a subconjunctival hæmorrhage in the left eye which covered the whole of the outer side of the eye. The temperature was 98·2° F. At 1.30 A.M. Mr. J. M. Barlet was called to the patient as he had vomited a large quantity of blood of the "coffee-ground" variety, which was followed by bright red blood, about one and a half pints in all. Previously to this he had passed a large stool, perfectly black, consisting of fæces and a large amount of blood. He was ordered ten grains of calcium chloride every four hours, but later he had another attack of vomiting, about one pint of nearly pure blood being brought up. This was followed by profuse epistaxis from the left side which was checked with ice. On visiting him next morning Mr. Barlet found him very blanched, collapsed, with a feeble rapid pulse and sighing respirations. The temperature was 99°. The hæmorrhage had almost entirely ceased. The patient was ordered ten minims of oil of turpentine, 30 grains of carbonate of bismuth, and almond mixture to half an ounce every four hours. He was given ice to suck; iced milk and soda-water and beef-tea were also ordered.

On July 31st the boy was a good deal better in the morning, there was no more hæmorrhage, the pulse was improving, and colour was returning. The temperature was 98·6°. The larger purpuric spots were passing through the ordinary stages of a bruise. The spleen and liver were not enlarged and there was no pericarditis or pleuritic effusion. The tongue had completely cleared. In the evening the left cheek was noticed to be swelling and there was some slight oozing of blood from the left upper gum. He remained well until the evening of August 2nd, when at about 5.30 epistaxis began from the left nostril, which could not be controlled by any means at hand—ice, hazeline, calcium chloride, and plugging of the anterior and posterior nares being all unsuccessfully tried—but the hæmorrhage finally ceased about 10 o'clock, the boy having lost about three-quarters of a pint of blood by the nose and having also vomited about one and a half pints of fluid mixed with "coffee-ground" material. He was very weak and blanched. The pulse was 120 and the temperature was 98°. He slept well, but epistaxis recommenced at 9.30 A.M. and was not checked until 3.30 P.M. by plugging the posterior and anterior nares with gauze soaked in adrenalin, of which he was also given 20 minims by the mouth. The boy was of a livid greyish colour and looking very bad. The pulse ranged from 130 to 148 and the temperature was 98·2°. The blood was examined microscopically on this day with the following result. By examining 15 squares, the number of red corpuscles was 54¼ per cent. Very slight increase in the number of leucocytes was present. There was no poikilocytosis. On examining the eyes with the ophthalmoscope some hæmorrhages were discovered round the left disc, some of them with whitish spots in the centre, but none at all in the right eye. From August 5th to 10th the patient had constant oozing from the left nostril of blood which latterly had become simply a watery fluid resembling serum. On the 11th he said that he felt well and very hungry, and from this date onward he rapidly recovered and was sent to the French convalescent home at Brighton on Sept. 2nd, returning thence three weeks later looking and feeling completely well.

Remarks by Mr. BARLET.—The interest of this case lies in the seemingly very trifling immediate exciting cause of the severe disturbance to which the boy was subjected, the rapid onset of the attack, and the fact that the hæmorrhages were always more marked on the left side than on the right. As to the original cause of the attack, it is somewhat difficult to be certain what this was, as there was no history of rheumatism or scarlet fever, which are sometimes predisposing causes, and also there were no swelling of any joint and no elevation of temperature as usually occurs in a rheumatic case. On the other hand, there was a distinct history of hæmophilia, both in the patient himself and in the case of his maternal uncle, so that I think the primary cause of the malady must be put down to the inherent hæmophilic tendency of the boy, and the immediate exciting cause to the shock of the cold water.

This case resembles that mentioned by Surgeon-Captain J. Fayrer in the *British Journal of Dermatology* for March, 1896, the onset being just as sudden but the results in this case being not so severe.

MANCHESTER UNION HOSPITAL.

A CASE OF CHYLOUS ASCITES.

(Under the care of Mr. ARTHUR H. BURGESS.)

THE patient, a man, aged 59 years, was admitted into the Manchester Union Hospital on March 24th, 1903. He had always enjoyed good health until ten weeks before admission, when he suffered from pain in the epigastric and left hypochondriac regions, constant and dragging in character, and uninfluenced by the taking of food. He at first vomited only occasionally but latterly very frequently. He had lost considerably in weight and during the three preceding days the abdomen had become rapidly distended. On admission the facial aspect at once suggested the existence of some malignant disease. The patient was extremely emaciated and there was general bronzing of the skin. The appetite was lost, the tongue was thickly furred, and he vomited after everything that he took. The abdomen was tensely distended with fluid and was dull everywhere to percussion except in

the epigastric region where some tenderness on deep pressure was noted.

On March 26th the abdomen was tapped and seven and a half pints of a milky fluid were withdrawn, after which a careful palpation failed to reveal any definite tumour. The fluid had a specific gravity of 1015, was alkaline, odourless, and contained albumin but not sugar, did not coagulate spontaneously, and a microscopic examination showed numerous finely divided particles of fat, some finer granules probably of a proteid nature, and a few granular epithelial cells and degenerating leucocytes. On March 31st nine pints, and on April 13th 11 pints, of fluid with similar characters were withdrawn. Emaciation steadily increased and death from exhaustion occurred on April 24th.

Necropsy.—On post-mortem examination a scirrhous carcinoma, which had commenced in the head of the pancreas, was found and had involved the right suprarenal capsule, the commencement of the thoracic duct, and the wall of the inferior vena cava itself for a small extent. The pylorus had evidently been compressed, the stomach was dilated, and the gall-bladder was distended with bile. The chyle vessels were evident but no actual rupture could be demonstrated. Small areas of fat necrosis were present about the pancreas and on the under surface of the diaphragm and the liver was studded with small secondary growths.

Remarks by Mr. BURGESS.—A distinction is to be drawn between true chylous ascites and "chyliform ascites," a less rare condition in which the milky appearance of the fluid is due to fat particles derived from the degeneration of the cells of a malignant growth or an inflammatory effusion and not from the chyle vessels or the thoracic duct. Microscopically the fat in chyliform ascites is in the form of large globules either free or contained within the degenerating cells, whereas in true chylous ascites only free finely divided particles of fat are met with. Obstruction to the thoracic duct only occasionally results in chylous ascites owing to the freedom of the collateral circulation, and malignant disease invading the duct and the receptaculum chyli has been observed without chylous ascites coexisting. Should collateral circulation fail to become established the pressure in the tributaries of the thoracic duct is increased and a transudation of chyle takes place into the peritoneum; or even a gross lesion, such as rupture or perforation of a chyle vessel, may allow of a direct escape of its contents.

GOCULDASS TEJPAL HOSPITAL, BOMBAY.

A CASE OF STRANGULATED INGUINAL HERNIA; PERFORATION OF THE BOWEL; RESECTION OF SEVEN INCHES OF GANGRENOUS GUT; RECOVERY.

(Under the care of Lieutenant-Colonel W. H. BURKE, I.M.S.)

A FAIRLY robust Mahomedan, aged 30 years, was admitted to the Goculdass Tejpal Hospital on the afternoon of March 30th, 1903. The patient stated that three days before admission while walking with a heavy load on his head he felt a sensation of something having given way and simultaneously felt severe pain and noticed a swelling on the right side of his scrotum. He stated that this was the third time that the hernia had come down, but that on the two previous occasions he had been able to return it and that he wore an improvised suspensory bandage to keep it in place. He stated that the bowels had been constipated since the hernia came down. On the night of his admission the patient was very restless and vomiting of a stercoraceous character set in. He was seen by Lieutenant-Colonel Burke on the morning of the 31st and at 11.30 A.M. was put under the influence of chloroform.

On opening the sac a quantity of liquid fæces escaped. The hernia was found to be a large enterocele containing many coils of ileum much inflamed and matted together, while one loop was in a gangrenous condition, and in this portion a perforation of the gut had taken place. After freeing the constriction, which was at the internal abdominal ring, Lieutenant-Colonel Burke decided to resect the whole of this gangrenous gut and to suture the cut ends. The mesentery was divided gradually and was ligatured piecemeal with catgut sutures. The cut ends of the gut were brought into careful apposition by a series of catgut Lembert's sutures, after which the united gut was inflated like a bicycle tube. The whole hernia was then returned cautiously into the abdomen and the sac was divided above and closed with catgut sutures and returned into the abdomen, and the pillars of the ring were sutured with two deep silkworm gut sutures. A part only of the lower portion of the sac was removed and, contrary to his usual practice, Lieutenant-Colonel Burke did not dissect out the whole sac, as the patient's condition was such as to indicate the advisability of rapidly terminating the operation. A small rubber drainage-tube was put in and a counter opening was made in the scrotum below. The wound was then closed, silkworm gut being used for the buried sutures and silk for the skin sutures. The antiseptic used before opening the sac was biniodide of mercury; afterwards boric acid and saline solution were employed. One hypodermic injection of digitalis and ether was given during the operation.

The patient was fed entirely by enemata (eggs, milk, and brandy) for four and a half days and on the evening of the fifth day a drachm of Brand's essence of beef was given every three hours. On the sixth day besides this he was allowed by the mouth an ounce of a mixture of one part of cream to two parts of barley water. On the ninth day he was given four ounces of Benger's food every two hours in addition. The nutrient enemata were gradually discontinued, while his food by the mouth was gradually increased, but he did not resume his ordinary diet until four weeks after the operation. During the first 24 hours after the operation the patient passed five stools which were offensive and contained blood-stained serum, but from that time the stools became normal in appearance and free from abnormal fœtor.

The wound was dressed on April 1st and the drainage-tube was removed; subsequently it was dressed every third day and finally every fourth day only. There was no suppuration; the patient never complained of any pain. A little thickening remains around the cord where the lower portion of the sac was left; the hernial opening is apparently permanently closed. The patient walked on the twenty-seventh day and left the hospital on May 5th. The temperature after the operation never rose above 100° F. and it reached that point on two occasions only; it was usually normal or subnormal.

Remarks by Lieutenant-Colonel BURKE.—I consider that this case is worth reporting as the result was much better than what I could have expected if I had followed the course usually adopted in a case such as I have described—viz., the removal of the gangrenous gut and the making of an artificial anus, which would either have remained or have had to be dealt with by a subsequent partial laparotomy with greater resultant tendency to hernia. Mr. William Thorburn,[1] in an interesting paper on an analysis of 110 operations for strangulated hernia, says: "The condition of the intestine varied within the widest limits, *but actual gangrene or perforation had occurred in ten instances only*"; also that in nine of the 27 [fatal] cases the intestine was gangrenous or perforated by ulceration; ..... of ten cases with perforation or gangrene only one recovered." In only two of the 110 cases published by Mr. Thorburn was resection of the gut practised and both of these cases died within a few hours. I hope, therefore, that this case may be of some interest to the profession.

I may add that I was assisted at the operation by my house surgeon, Assistant-Surgeon Lafond, and for the careful nursing of the case I am indebted to charge-nurse Flynn.

Medical Societies.

OBSTETRICAL SOCIETY OF LONDON.

Exhibition of Specimens.—Chorion-epithelioma.

A MEETING of this society was held on June 3rd, Dr. EDWARD MALINS, the President, being in the chair.

Specimens were shown by Lieutenant-Colonel A. J. STURMER, I.M.S., Dr. F. W. N. HAULTAIN (Edinburgh), Dr. P. HORROCKS, Dr. H. BRIGGS (Liverpool), Dr. T. G. STEVENS, Dr. J. M. MUNRO KERR (Glasgow), Dr. F. W. ANDREWES, and others.

Dr. JOHN H. TEACHER (Glasgow) read a paper on Chorion-epithelioma and the Occurrence of Chorion-epitheliomatous and Hydatidiform Mole-like Structures in Teratomata and gave a demonstration illustrated by specimens and lantern slides. Dr. Teacher discussed and illustrated by drawings and photographs of microscopic preparations the nature and origin of chorion-epithelioma and its relations to the placenta,

[1] Brit. Med. Jour., April 25th, 1903.

hydatidiform mole, and certain tumours which were not related to a pregnancy but which showed the same histological characters. The clinical features, difficulties of diagnosis and treatment, and certain facts which appeared to warrant a more hopeful prognosis than it had been the custom to offer were also considered and three new cases which had been observed in Glasgow since 1901 were described. The conclusions which Dr. Teacher sustained were:—1. That the so-called deciduoma malignum was a tumour arising in connexion with a pregnancy and originating from the chorionic epithelium (or its forerunner the trophoblast) which was of fœtal epiblastic origin (the view of Marchand). 2. That these tumours formed a quite characteristic group clinically, pathologically, and developmentally, and that they should be classified neither as sarcomata nor as carcinomata, but as a distinct group *sui generis*. The most appropriate name was chorion-epithelioma. Malignant hydatidiform mole might be treated as a variety of this disease. 3. That in addition to the common tumours developing from a pregnancy there were tumours containing precisely similar structures which were not connected with a pregnancy and might occur in other parts of the body than the uterus and in either sex. The most probable explanation of them was that they were teratomata, originating from some structure which had the morphological value of an included ovum and the chorion-epitheliomatous tissues represented the actual trophoblast (chorionic epithelium) of the included ovum.

Dr. HORROCKS considered the paper a valuable piece of work and an important contribution to the solution of a vexed question. As recently as January, 1902, Dr. C. H. J. Lockyer had shown a specimen and had stated his opinion that there were two kinds of malignant growth associated with pregnancy—one a mesoblastic sarcoma of decidual and therefore of maternal origin and the other a syncytial carcinoma or chorion-epithelioma and therefore of fœtal origin. Dr. Lockyer stated that the malignant sequela of the vesicular mole was invariably a syncytioma. He (Dr. Horrocks) had exhibited a specimen that night which seemed to prove that this statement was incorrect. The patient came under his care at Guy's Hospital when his colleague, Dr. A. L. Galabin, resigned his position. The woman was moribund and only lived a week or two afterwards. She began bleeding during a pregnancy in the early part of 1902 and then was delivered of a vesicular mole. The bleeding stopped and she menstruated normally three times before bleeding set in, which it did last November. When she came into the hospital she had extensive cancer in the uterus which reached as high as the navel, in the vagina from which nodules protruded so as to be visible, and in the lungs giving rise to hæmoptysis. At the post-mortem examination the usual condition of things was found. But the chief interest in this specimen lay in the fact that in spite of this being a genuine case of a sequela of hydatidiform degeneration of the chorion, yet no syncytium could be found in the growth or in any of the secondary growths. Still it was a sequela, but whether post or propter he could not say; only it must no longer be alleged that this form of growth following hydatid mole was invariably a syncytioma. He did not feel that they were in a position yet to state that all these cases were of maternal or of fœtal (ovular) origin. Indeed, he felt inclined to believe with Dr. Lockyer and others that there were two kinds of malignant growth associated with pregnancy, one of decidual (maternal) origin of a sarcomatous type, for which the term "deciduoma malignum" was appropriate, and the other a chorion-epithelioma of fœtal (ovular) origin of a carcinomatous type, but he would like to ask (1) were all malignant tumours of the uterus following and associated with a pregnancy that contained syncytium, *ipso facto*, of fœtal (ovular) origin, that is, did the presence of syncytium prove ovular origin? and (2) was it possible for a malignant growth associated with pregnancy to be of fœtal (ovular) origin and yet to be of the sarcomatous type without syncytium or were all such growths of decidual or maternal origin?

Dr. HAULTAIN thanked Dr. Teacher for his admirable communication which from its completeness would stand as a classic on the subject in the English language. Although that society did not commit itself as a whole to the opinions expressed in the discussion of 1896, yet the individual members, without exception, committed themselves to the sarcoma theory and naturally this was accepted by the continental observers as the expression of British opinion, no other discussion of the subject having been published. In 1898 a case of so-called deciduoma malignum had come under his care; this was cured by vaginal hysterectomy and the woman was still well. As regards the indication for radical treatment by hysterectomy, the simple demonstration of syncytial masses in uterine scrapings was not sufficient, particularly after the expulsion of a mole, as portions might be retained without assuming malignant action and could be cured by curettage, as he had twice seen. When, however, violent hæmorrhage was associated with the curettage the prognosis was much more unfavourable and the cavity of the uterus should be at once explored by the finger for the detection of a growth. He was much interested in the cases of spontaneous cure after metastasis. This might be accounted for by the tendency of the growth to kill itself by the free extravasation of blood choking cell growth, the particular rôle of these cells being to penetrate blood-vessels and to flourish in the circulating blood-stream.

Dr. T. ARTHUR HELME (Manchester) expressed surprise at the sweeping character of some statements in the paper. He had understood Dr. Teacher to say that no case was on record that supported the sarcomatous nature of these tumours and that no "deciduoma" with solely sarcomatous tissue had been recorded, that all these tumours were chorion-epitheliomata, and that he had never seen maternal tissues growing after a fashion at all comparable with the cells of these tumours. In order to clear the way for these opinions, Dr. Teacher ruthlessly brushed aside the maternal origin of those tracts of cells which were to be found in the intervillous spaces and which they had looked upon as "decidual" (maternal), and boldly said that they were all of trophoblastic or ovular production. He (Dr. Helme) had brought to the meeting a specimen of "deciduoma" which had occurred in his practice some three or four years ago but had not been recorded, as on examination he had found that it supported the prevailing opinion that these tumours might be of "decidual" origin. On hearing Dr. Teacher's opinion of the impossibility of such an origin he thought that the specimen might be of some value and though, in the short time at his disposal, he could not do the case justice, he would briefly allude to it and would report the case more fully subsequently. Dr. Helme then gave a brief history of the clinical symptoms and appearances. Some years ago he had made observations upon the histology of the pregnant and puerperal uterus, especially in the rabbit, and if one thing had impressed him more than any other it was the enormous hypertrophy which the maternal connective-tissue cells underwent and he would call Dr. Teacher's attention to those huge plasmodia of maternal origin which were to be found, not only in the uterine, but also in the vaginal tissues. Shortly, he might state that the tumour, which he now exhibited, resembled in its broad features the sarcomata, but at the same time possessed special characters which demanded that it should be placed in a special class for which the name "deciduoma" seemed to be eminently suitable. He claimed that this specimen showed the possibility of the decidual—i.e., connective-tissue—origin of some at least of these tumours. As to the chorion-epitheliomata, the theory that they had differentiated in the chorion a stratum of tissue which was neither fœtal nor maternal and which was capable of giving rise to a malignant growth in its host which was neither sarcomatous nor carcinomatous, was fascinating, but before accepting a doctrine which would so completely affect their views as to the origin of tumours they should demand explicit proof and it seemed to him that this would not be forthcoming until it was demonstrated that what they had considered to be cells of maternal (connective-tissue) origin were really of trophoblastic origin, and until the source of the syncytium itself was identified.

Dr. F. W. ANDREWES expressed his agreement with the main thesis of Dr. Teacher's paper—viz., that the tumour formerly known as deciduoma malignum was of fœtal origin and derived from the chorionic epithelium. He was, however, of opinion that the term "syncytioma" was preferable to "chorion-epithelioma," as being less cumbrous and expressing the striking histological feature of the growth without implying any theory of its origin. With regard to those syncytial tumours of the uterus which appeared to have no connexion with a pregnancy he was of opinion that the ground was much less certain; the supposed teratomatous origin of such growths required careful scrutiny. It was necessary to show that an aberrant included ovum might actually give rise to chorionic structures and to find syncytial tumours arising in connexion with undoubted teratomata. Until the present meeting he had never seen such proof. Both sarcoma and squamous-celled

carcinoma might originate in dermoids, but Dr. Ritchie had shown that evening a syncytial tumour arising in a dermoid of the mediastinum in the male. The acceptance of the view that ordinary syncytioma malignum was of chorionic origin did not compel them to accept such an origin for every syncytial tumour. Syncytial sarcoma was not a very rare thing. (Two specimens of mixed-celled endosteal sarcoma of bone were shown under the microscope containing immense syncytia, almost comparable with those of chorion-epithelioma.) Might not the rare cases of syncytial uterine growth having no connexion with pregnancy, perhaps be of this nature? Such a possibility was an additional reason for preferring the term "syncytioma" to "chorion-epithelioma."

Dr. J. RITCHIE (Oxford) described the case of a young man who during life was considered to be suffering from a malignant tumour of the anterior mediastinum of three months' duration with secondary growths in the lungs. Post mortem there was found in the region named a mass which consisted partly of a dermoid cyst and partly of a solid tumour which microscopically had the precise characters of a chorion-epithelioma. Secondary growths existed in the lungs, liver, and spleen and had the same microscopic appearances as the solid part of the primary tumour. Dr. Ritchie considered that this tumour was to be looked on as a teratoma developed from an included ovum, the part of which corresponding to the trophoblast had developed in a manner analogous to that part of the trophoblast from which an ordinary chorion-epithelioma may arise. He would, however, welcome the discovery of other similar tumours, as the possibility of the dermoid part of the tumour having arisen from an epithelial inclusion from the third branchial cleft might be advanced. In such a case the malignant part of the growth might be looked on as an angio-sarcoma of an accidental association. He had, however, never seen any tumour of those usually classed either as "angio-sarcomata" or "endotheliomata" which at all resembled a chorion-epithelioma.

BRITISH GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on June 11th, Dr. Heywood Smith, the President, being in the chair.—Dr. C. H. F. Routh read a paper on Some Directions and Avenues through which Cancer may possibly be more succesfully treated and perhaps cured. He considered cancer to be hereditary, inoculable, and occasionally communicable from one person to another, to be favoured by certain localities, and to be nearly everywhere on the increase, and that though the particular micro-organism to which it was due had not been determined the disease might safely be accepted as of specific origin. It had been known to disappear spontaneously and experiments suggested that this was owing to the growth having been acted on by oxygen. Reviewing the effects of oxygenation on the bacteria of chronic ulcers, on tubercle, and on abdominal dropsy, the effect of vibrations, simple and electrical, on the life of some bacteria, the treatment of diphtheria by antitoxins produced by electrolysis, and the power of liquid hydrogen to destroy bacteria such as the typhoid bacillus and the probability of its similar action in cancer, Dr. Routh suggested as measures to be taken for the prevention and treatment of cancer a pure water-supply, efficient drainage by means of the electrolysation of sea water, the free use of oxygen, and the investigation of the possibility of destroying micro-organisms by electrical shock or vibrations or by the use of liquid air or hydrogen.—Dr. Herbert Snow said that investigation had been hampered by using the term "cancer" in the vague sense of a single disease. There were many forms of malignant disease differing from one another in the causes to which they were due and in the clinical phenomena they exhibited. It was, for instance, a great mistake to confuse epithelioma rarely passing beyond the glands with carcinoma in which the blood current and distant viscera became infected. He could not agree that cancer was hereditary and thought it was rarely, if ever, communicated. He did not admit that cancer ever disappeared spontaneously. If the disease was due to a parasite in causing the duplication in remote parts of the histological structure which characterised the original growth that parasite differed from any other known as the cause of disease.—Dr. Bedford Fenwick had for 16 years made systematic inquiries in every case of malignant disease, a very large number, that came before him. He had never met with one in which the disease had been communicated, in very few was there any reason to suppose it hereditary, and in only one had a previous occupant of the patient's house been known to suffer from cancer.—The President related a case in which he believed cancer had been conveyed from one operation case to another four days later.—Dr. Routh having replied, Dr. J. A. Mansell Moullin read a paper on the Treatment of Hæmatocolpos and Hæmatometra. When the atresia was situated at the vaginal orifice or at the cervix the conditions were far less formidable than when the vagina was partially or entirely wanting. In the former cases he recommended free incision and gentle douching. The great danger to be feared and avoided was sepsis; reflux through the Fallopian tubes from contraction of the uterus need not be feared, as the retention of the fluid implied that the cavity was closed at its upper as well as at its lower end; and the freer the exit the less the danger. Whenever dissection would be necessary to reach the sac he thought the abdomen should be opened. The sac might be incised, evacuated, and marsupialised in the abdominal wound or, better still, the uterus might be removed by subperitoneal hysterectomy at the level of the inner os, the ovaries, if healthy, being left. The remnant of sac left would not be likely to give any trouble.—The paper was discussed by the President, Dr. Snow, and Dr. Bedford Fenwick, and Dr. Mansell Moullin replied.

DERMATOLOGICAL SOCIETY OF LONDON.—A meeting of this society was held on June 10th, Dr. J. H. Stowers being in the chair.—Dr. T. Colcott Fox showed (1) an elderly woman who had attended his out-patient department with a Cicatricial Baldness resulting from Lupus Erythematosus on the Scalp. He had ordered her some salicin internally and almost immediately there had appeared a widespread acute erythematous eruption over the face. The question arose, Was this erythematous eruption an acute outbreak of the original disease or was it due to the salicin? The careful examination of the parts rather suggested the former alternative. The salicin had been stopped and the redness was disappearing, but now that this had occurred the patient had consented to take more salicin to determine whether the eruption was due to the drug or not. 2. A young man who had been suffering for a week or two with Gonorrhœa and a Gonorrhœal Arthritis of the left wrist. Without the administration of any drug he had suddenly developed some small papules all round the lower part of the abdomen and loins. When first seen these were minute red elevations covered with a tiny vesicle, but the latter had dried up into a scale before the case was seen by Dr. Fox himself. There was no suspicion that the rash was syphilitic and the case was shown for diagnosis. Psoriasis was the only diagnosis suggested by some of the members.—Dr. J. Galloway showed a man with a marked, brownish-red, infiltrated eruption all over the body and especially affecting the lower limbs. Over the ankles the epidermis had undergone enormous hypertrophy so as to produce an actually verrucose condition over the front of the joint. The question was what was the underlying dermatosis. The rash appeared to begin as small, uniform, follicular papules, somewhat suggestive of lichen planus or pityriasis rubra pilaris, though there were no plugs in the mouths of the follicles. The question was asked whether the patient had had much arsenic and to this Dr. Galloway could give no answer.—Dr. J. A. Ormerod showed a mother and child, both of whom had suffered ever since birth from the occurrence of Bullæ on the Fingers and Toes in summer only. On exhibition there were clear bullæ at the roots of the middle toes in both the patients.—Mr. Willmott H. Evans showed a case of Actinomycotic Infection of the Skin of the Left Side of the Face in the Region of the Angle of the Jaw. No connexion with a tooth had been found but it was believed that the skin was infected secondarily to the deeper tissues. On exhibition the whole of the left side of the face and neck were greatly swollen, œdematous, and of a bluish-red colour. There were also two or three sinuses with sprouting granulations present and out of these the characteristic pus could be easily expressed.—Dr. A. Whitfield showed a case of Congenital Keratoma of the Palms and Soles in a man aged 22 years. The history showed no trace of any skin affection in any member of the family.

LARYNGOLOGICAL SOCIETY OF LONDON.—A meeting of this society was held on June 5th, Dr. P. McBride, the President, being in the chair.—Mr. E. B. Waggett

showed a girl, aged nine years, with a large Post-Pharyngeal Swelling which had been first noticed nine months previously and had latterly increased in size to such an extent as to cause some difficulty in breathing during sleep. A number of enlarged glands were present below the angle of the jaw on the right side. These had been noticed shortly after an attack of measles three years previously. The child appeared to be in good health and no family history of tubercle was available. Mr. Waggett said he believed the swelling to be a broken-down tuberculous mass.—Dr. E. Furniss Potter showed a case (previously exhibited at the last meeting) of a man who had had a large Swelling on the Right Side of the Naso-pharynx which completely obscured the right choana, in which the diagnosis was uncertain (possibly malignant disease or gumma). Under the administration of iodide of potassium the swelling had completely disappeared.—Dr. V. H. Wyatt Wingrave showed a case of Supranasal Cyst in an Infant, aged 15 months.—Dr. L. H. Pegler exhibited a section of Recurrent Growth of the Septum.—Mr. P. de Santi showed (1) a case of Gumma of the Epiglottis which had disappeared rapidly under the administration of iodide of potassium; and (2) a specimen of a large Fibro-lipoma of the Larynx.—Mr. F. J. Steward showed (1) a case of Infiltration of the Soft Palate of doubtful nature; and (2) a specimen of Epithelioma of the Pyriform Sinus.—Dr. W. H. Kelson showed a case of Laryngeal Fistula. The patient was a man, aged 58 years, who had cut his throat in November last.—Dr. H. L. Lack showed (1) a case of Thickening of the Left Vocal Cord with deficient movement of some months' duration; and (2) a case of Multiple Sinus Suppuration showing the results after operation on the sphenoidal sinus with a new instrument.—Dr. H. Tilley showed a boy, aged six years, with a freely moveable Pedunculated Tumour of the size of a Tangerine orange growing from the right tonsillar region. The tumour had been first noticed two months previously. Since that period it had been twice removed but had rapidly recurred. It did not bleed when manipulated. There was a small hard gland freely moveable behind the angle of the right jaw.—Sir Felix Semon was of opinion, having regard to the rapid recurrence after removal and the present appearance, that this would be found to be a malignant growth.

MEDICO-LEGAL SOCIETY.—A meeting of this society was held on June 9th, Sir W. J. Collins, the President, being in the chair, when the adjourned discussion upon Dr. J. G. Garson's paper on the Position of Medical Jurisprudence in London, especially in Reference to the Investigation of Cases of Death from Violence, was continued, followed by a paper by Dr. W. Wynn Westcott on the Overlying of Infants. A paper by Dr. P. Smith on the Workmen's Compensation Act and one by Mr. R. Henslowe Wellington on the Recent Southwark Poisoning Trial made up an interesting agenda which brought the session of this newly organised society to a close.

Reviews and Notices of Books.

The Elements of Pathological Anatomy and Histology for Students. By WALTER SYDNEY LAZARUS-BARLOW, B.A., B.C., M.D. Cantab., F.R.C.P. Lond., Pathologist and Lecturer on Pathology at the Westminster Hospital. London: J. and A. Churchill. 1903. Pp. 705. Price 24*s.*

As is explained by the title this text-book is intended to introduce the student to the study of pathological anatomy and histology. The author believes (and we agree with him) that it is better to explain fully the main types of pathological change than to attempt to give a description of numerous subvarieties or, in other words, that the teaching of the principles governing variations is of more use, particularly in pathology, than the teaching of the names and appearances of the numerous subvarieties themselves.

The book is divided into two parts; the first deals with General Pathological Anatomy and Histology and the second is concerned with the Pathological Anatomy and Histology of Special Organs and Tissues. Each part is further subdivided into sections instead of into chapters. The retrograde changes are first considered and an excellent account is given of atrophy and hypertrophy, the fatty change, cloudy swelling, the lardaceous change, and other pathological conditions connected with degenerative processes, including gangrene and caseation. These subjects present considerable difficulties to the student for their full comprehension; Dr. Lazarus-Barlow, however, describes them in such lucid terms that the reader has no difficulty in grasping his meaning. Obscure terms are avoided and purely theoretical questions are but lightly touched upon.

Section II. on Inflammation will be found to contain a mass of information. After a consideration of the "cardinal signs" of inflammation, "redness, swelling, heat, pain, and impairment of function," some interesting remarks are made on "cellular changes in inflammation," chemiotaxis, and phagocytosis. The student will also find much material for study under the heading, "Types of Inflammation." The classification adopted is a comprehensive and practical one: (*a*) infective; (*b*) specific; (*c*) acute; (*d*) chronic; (*e*) interstitial and parenchymatous; and (*f*) catarrhal inflammation. Then follow sections on the Sequels of Inflammation, the Anatomical and Histological Appearances of certain Specific Inflammations, and the Chronic Fibroses. All of these conditions are ably and fully described.

The description of New Growths or Neoplasms occupies five sections. In a text-book of pathological anatomy and histology the value of the work largely depends upon the nature of the illustrations or perhaps it would be better expressed by saying that the value of such a work is greatly increased if the illustrations are not only numerous but are true to nature. Dr. Lazarus-Barlow may certainly be congratulated on the success that has attended his efforts in this direction. Photography has not been used in making the microscopical drawings; Dr. Lazarus-Barlow maintains that the interpretation of micro-photographs needs special training which the student has not had. We consider that he is quite right in his contention and that micro-photographs for teaching purposes have proved distinctly disappointing. The drawings for this work have been made by a non-medical artist (the author's wife), in order that they may represent faithfully the appearances as seen by the elementary student when looking down the microscope and are not semi-diagrammatic. The drawings are beautifully executed and are perfectly true to the originals. The lack of resemblance between many drawings in text-books and corresponding microscopic sections given in class seems so great to students that the illustrations are often more of a hindrance than a help, but this statement by no means holds good with regard to the work now under consideration. We have made these remarks at this stage of our review as they apply particularly to the representation of microscopic sections of new growths. Without such illustrations the student would find it impossible to realise the conditions which were being described. The classification of neoplasms here adopted is a good one and one well adapted for the instruction of students. In addition to illustrations showing the structure of the more common growths there are some very good drawings of sections of capillary and venous angioma, glioma, rhabdomyosarcoma, leiomyoma, and papillomatous cystadenoma.

In Part II. the Pathological Anatomy and Histology of the Special Organs and Tissues are described, commencing with the pathological histology of the blood. The changes in number and appearance of the red and white cells which occur in diseased conditions are clearly and fully set forth. Much stress is now laid on the various forms of leucocytes which may present themselves as aids to both diagnosis and prognosis and it is desirable that the student should acquire

some knowledge of the subject. In the section devoted to this matter the results of the most modern researches are recorded, all doubtful and obscure points being excluded.

In the next section the changes affecting the Heart, Pericardium, Arteries, Veins, and Lymph Channels are described. As the author points out, in most instances all these parts of the vascular system are affected together, but for convenience of description it is certainly preferable that the diseases of each should be taken separately. The morbid conditions which may attack the endocardium are most lucidly described. The remarks on ulcerative endocarditis, however, do not, in our opinion, maintain the high standard which is so marked throughout most of the work. The varieties of the affection are not sufficiently dwelt upon, so that the distinction between primary and secondary infective endocarditis is almost lost sight of.

The section on the Pathological Anatomy and Histology of the Bones gives evidence of the care which has been bestowed on a subject which presents great difficulties to the student. The same may be said of the following section which deals with Affections of the Joints, Muscles, Tendons, and Bursæ. The pathological changes undergone by the joints are of the most diverse nature but Dr. Lazarus-Barlow has succeeded in describing these changes in terms which convey a maximum of information.

The Diseases of the Digestive and Respiratory Tracts and of the Urinary Organs are also most ably considered and sections are also to be found on Morbid Changes which occur in connexion with the Skin and its Appendages and in the Eye and Ear, the final section of this volume being devoted to Affections of the Nervous System.

Taking the work as a whole, we consider it one of the best text-books on pathological anatomy and histology which we have read and we can cordially recommend its use to students preparing for examinations and to practitioners who wish to refresh their memory on the subjects with which the book is concerned.

Diseases of the Skin: their Description, Pathology, Diagnosis, and Treatment. With Special Reference to the Skin Eruptions of Children and an Analysis of 15,000 Cases of Skin Disease. By H. RADCLIFFE CROCKER, M.D., F.R.C.P. Lond., Physician for Diseases of the Skin in University College Hospital, &c. Third edition, with Four Plates and 112 Illustrations. London: H. K. Lewis. 1903. Vol. I., pp. xxxii. and 672; Vol. II., pp. 715. Price 28*s.* net.

IT is always a pleasure to read a work written by one who is a master of his subject and the perusal of this edition of this work would convince any member of the medical profession that it was indeed the production of an authority on dermatology. Even when the first edition of the work appeared in 1888 it was at once recognised as a standard work of dermatology and, in fact, it rapidly took its rightful place as the most important treatise on that subject which had ever issued from the British press. The second edition seemed but to enhance, if that were possible, the reputation achieved by the first and we feel sure that all competent judges, both in this country and elsewhere, will agree in looking upon it in its third edition as the greatest, most thorough, and most trustworthy treatise on the diseases of the skin.

It is very curious to consider the attitude maintained by a large proportion of the medical public towards dermatology. Diseases of the skin are looked upon as inscrutable mysteries; eczema and psoriasis and a few other of the commoner cutaneous diseases may be recognised and treated, but in the diagnosis and treatment of any of the diseases less frequently seen the average medical man at once feels himself out of his depth. This state of things should not be and it is to be attributed partly to the somewhat elaborate nomenclature by which nearly every cutaneous disease has at least two or three names and most of the names are applicable to several distinct diseases. One great cause of the difficulty which many find in dermatology is that we are able to distinguish many more forms of disease as the skin is exposed to view than would be possible in the case of an internal organ. There is, however, no department of medicine in which a fair knowledge can be more readily obtained and a very little study devoted to dermatology would be amply repaid.

At the present time there is no dearth of useful text-books and a careful study of any of them would be followed by a great increase of the interest with which the medical practitioner meets with a case of disease of the skin. Many rare diseases would be recognised which are now readily and hastily included under "eczema" and dermatological science would benefit by a widening of our knowledge. The recent increase in the extent of the science of cutaneous disease is evidenced by the increase in the size of the work under notice. Formerly it was contained in a single volume but now it has been found necessary to divide it into two. Many new articles have been added and most of these deal with "new" diseases and some of them by no means unimportant.

A strong point in this work has always been the histology of cutaneous disease, for this is a department of dermatology in which the author has done much original work, and the treatment is given with especial fulness and care. A very useful feature is the copious bibliography which is given with each disease, so that the reader is able readily to refer to the original articles if he wishes to obtain further information.

Dr. Crocker has analysed 15,000 cases of skin disease of which 10,000 occurred in his hospital practice and 5000 in his private practice. It is of interest to compare the relative frequency of various skin diseases in the two classes, but as the author points out there are many modifying factors which prevent the two sets of numbers being really representative of the relative frequency of disease in the poorer and richer classes of the community. For few patients go to a consultant who have not already been treated by their family practitioner, so that the private cases are representative rather of the more severe and inveterate cases than of skin lesions as they occur among the wealthy.

We may say, in conclusion, that the chief characteristic of Dr. Crocker's work is the well-balanced judgment which it manifests. Whilst he describes all the theories of etiology and all the methods of treatment which have been advocated he is able from the wide extent of his experience to weigh carefully the arguments advanced and the claims made and to express an opinion which accurately represents the present condition of our knowledge. We extend a cordial welcome to the third edition.

The Surgical Diseases of the Genito-Urinary Organs. By E. L. KEYES, A.M., M.D., LL.D., Consulting Surgeon to the Bellevue and the Skin and Cancer Hospitals, Surgeon to St. Elizabeth Hospital, &c.; and E. L. KEYES, Jun., A.B., M.D., Ph.D., Lecturer on Genito-Urinary Surgery, New York Polyclinic Medical School and Hospital, Surgeon to the Out-patient Department, St. Vincent's Hospital, &c. With 174 Illustrations in the text and ten Plates, eight of which are coloured. London and New York: D. Appleton and Co. 1903. Pp. 827.

IN 1867 appeared van Buren and Keyes's treatise on Genito-Urinary Disease and Syphilis and in 1888 appeared a much modified second edition, and this volume now appears representing the third edition with a limitation of its scope, because the subject of syphilis has been excluded, for though it is a genital disease in its usual mode of infection, it is not genital in its mode of expression and therefore has no necessary connexion with the genito-urinary tract. On the other hand, gonorrhœa has been

included because, as the authors tell us, it is so intimately associated with all the inflammatory disorders of the urethra, the bladder, the ureters, and the kidneys, both as an acute disease and in the wide-reaching influence of its sequelæ. Moreover, it has been thought advisable to consider all the manifestations of gonorrhœa, as in the eye and joints, in order to make the subject complete.

Probably the most interesting portion of the book at the present time is that dealing with the treatment of hypertrophy of the prostate. The authors consider castration and vasectomy quite unjustifiable, but suprapubic prostatectomy and the perineal operation they find satisfactory, the suprapubic route being preferred for great prostatic enlargement. They have found also Chetwood's operation very useful; this is a modification of Bottini's and consists in cauterising the obstructing lobes through a perineal incision. The authors maintain that extra-vesical perineal prostatectomy is impossible if any notable removal of prostatic tissue is necessary. The work is evidently a trustworthy successor to the classical treatise of van Buren and Keyes.

LIBRARY TABLE.

Aids to Sanitary Science. By FRANCIS J. ALLAN, M.D. Edin., D.P.H. Cantab., Medical Officer of Health of the City of Westminster. Second edition, revised and edited by REGINALD A. FARRAR, M.A., M.D. Oxon, D.P.H. Cantab. London: Baillière, Tindall, and Cox. 1903. Pp. 272. Price 4*s.* 6*d.*—This thoroughly good and practical little work has well deserved a second edition. Dr. Allan's design has been to present the varied and extensive range of subjects embraced in the term "hygiene" in such a form that the student may readily refresh his memory upon any point without having to read through detailed controversy or explanation. Many additions have been made to our accepted knowledge in sanitary science during the last two or three years and the assistance of Dr. Farrar in bringing the work up to date has proved valuable. As a supplement to the classical works upon hygiene, as a ready book of reference, and in particular as a summary from which to refresh the memory before entering the examination room we recommend this little treatise highly.

The Sayings of Jesus. Collected and arranged by HARRY ROBERTS. London: Gay and Bird. 1903. Pp. 149. Price 1*s.*—This little book is an attempt to collect the sayings of Jesus and to present them to the reader apart from the story of the life and deeds of their author. The compiler's view would appear to be that the known episodes of the life of Jesus overshadow in men's minds their conceptions of his actual teaching, so that the nominal followers of the founder of the Christian religion, while familiar with the accepted story of his career, are unaware of the practical rules of his teaching. If it can be shown that the doubts which have arisen in many minds—many thoroughly pious minds, it should be added—as to the literal truth of certain Bible records have become transformed into doubts as to the eternal truths of the Christian doctrine then such a book as this is certainly justified. We doubt if many people are in this plight, but Mr. Harry Roberts thinks otherwise.

Service and Sport on the Tropical Nile. By Captain C. A. SYKES, R.H.A. With a Map and Illustrations from Sketches and Photographs by Major E. A. P. HOBDAY, R.H.A. London: John Murray. 1903. Pp. 306. Price 12*s.*—This book is a curious mixture. It is a record of experiences as a soldier, a pioneer, and a sportsman in the beautiful, terrible, desolate district lying between Lake Victoria Nyanza and Lake Albert Nyanza, and it is not a very good book. It fails because it is not well written, because the journeys undertaken cannot be traced on the map presumably supplied for the purpose, because the author's ideas of humour are crude, and because his tendency to obvious moralising ("Equipped with knowledge a traveller would not have to waste many weary days in finding things out for himself") is unrestrained. Having said this let us "hedge." It is also not a very bad book. It strikes us as a faithful unexaggerated narrative, and it brings before the reader the kind of work that has to be done by those to whose lot it falls actively to maintain the borders of our empire and to extend feelers from civilisation into savagery. The supremacy of the white man over the black is shown by episodes that have been lived by the writer in a way that no anthropological treatise could ever display it; the beauty of virgin scenery is brought before us, and, unwittingly, the bestiality of the destruction of animal life, necessary to the support of pioneering expeditions, is revealed. Uganda is a country in which it is impossible to help being interested, and Captain Sykes's artless notes upon his travels undoubtedly are worth reading; but no one can peruse them without feeling that the author might and could have made a better use of his material.

Christian Science. By WILLIAM LEFROY, D.D., Dean of Norwich. London: Society for Promoting Christian Knowledge. 1903. Pp. 169. Price 2*s.* 6*d.*—This eloquent, humane, and sensible little book is compounded of a series of sermons preached in Norwich Cathedral by the Dean of Norwich, whose frankness of utterance and clearness of vision are as well known as his erudition. The book, which is published under the direction of the Tract Committee of the Society for Promoting Christian Knowledge, has for its object the contrasting of the true Christian faith with the hysterical series of hallucinations that are grouped together under the term "Christian Science," and it is dedicated to "those whose heroic but ill-requited self-sacrifice has won for them a high place amongst the most benevolent of the sons of men and whose sacred toil is sanctified by the work of Him who 'went about doing good': to the physicians and surgeons of our land." The Dean of Norwich is a fair and courteous opponent. He begins by admitting "the unsinkable truth" in Christian Science which "keeps afloat all with which it is for the time united until the balance is lost." In Christian Science the "essential" verity, so far from being a new revelation, as is claimed by the preposterous woman at the head of the movement, is simply the time-honoured, bald-headed fact that the mind has power over the body. Having allowed the occasional power of moral suggestion over disease Dr. Lefroy proceeds to examine in detail the claims of this pretentious adventurer and ends by finding Christian Science upon the most incontrovertible grounds "a profane, blasphemous, inflated, and lucrative imposture." Not one of these serious allegations is made without complete justification and we recommend the book confidently to our readers as epitomising the arguments of Christianity against a rank and malignant fraud.

Scientific Memoirs by Officers of the Medical and Sanitary Departments of the Government of India: Some Observations on the Poison of Russell's Viper (Daboia Russellii). By Captain G. LAMB, I.M.S., and WILLIAM HANNA, M.B. R.U.I. Calcutta: Obtainable from seven booksellers in London; from Williams and Norgate, Oxford; and from Deighton, Bell, and Co., Cambridge. Pp. 39. Price 5 annas, or 6*d.*—Part No. 2 of these scientific memoirs dealt with the subject of malaria and was noticed in THE LANCET of Feb. 7th, p. 389. The present monograph, which is No. 3 of the series, is described by the authors as a preliminary note summarising researches undertaken with the view of comparing the effects of the poison of a true viper with the effects of the poison of some other snakes as described by various observers. The material which was used in all the experiments now recorded was pure, dry, and fresh daboia venom. This was collected during a period of some months from full-sized living snakes. The poison was obtained in a watch-glass by firmly compressing the glands and after

thorough drying over lime was preserved in an air-tight tube protected from light. The first three series of experiments were made on pigeons, rabbits, and monkeys with the view of determining the exact physiological cause of death. The venom was dissolved in sterile normal saline solution, the proportions being such that one cubic centimetre contained two milligrammes of the dried venom. Two monkeys died in one minute after the injection of two milligrammes of venom into a vein of the upper limb. A rabbit died in two minutes after an intravenous injection of 0·26 milligramme of venom per kilogramme of body weight. In the result ten pigeons, seven monkeys, and seven rabbits were killed by various doses of the venom and in every case there was more or less extensive intravascular clotting of the blood. It further appeared that when a dose which just failed to cause death was given intravenously the animal presented only very slight symptoms or even none at all, but in the case of subcutaneous injection a dose which failed to cause rapid death by intravascular clotting might in some instances produce serious symptoms of chronic poisoning and eventual death. It was also noticed in several of the monkeys that even when the portal vein, the superior and inferior venæ cavæ, the aorta, and the pulmonary vessels were blocked with solid clots the heart nevertheless contained fluid blood which remained uncoagulated. This observation led Captain Lamb and Dr. Hanna to investigate the coagulability of the blood in cases of the chronic daboia poisoning just referred to, and in every instance in which the symptoms were severe they found that there was a great deficiency of coagulability as estimated by the method of Professor A. E. Wright, late of Netley. On the other hand, when there was no great deficiency of the blood coagulability the symptoms were not urgent and recovery was rapid. In order to ascertain whether the poison had any special effect on the central nervous system, two milligrammes were injected directly on to the medulla through the posterior occipito-atlantoid ligament of a monkey. A few hours afterwards the animal appeared lethargic and inclined to lie down but next day it was apparently all right and no further symptoms developed. This seems to show that the symptoms and rapid death seen in acute cases of daboia poisoning are not due to any direct action on the central nervous system and leads to the conclusion that daboia poison contains no element similar to the toxic albumose of cobra poison which acts directly on the nerve centres of the cord and medulla. Another important difference between daboia poison and cobra poison is to be found in the effect produced on them by heat. Many observers have shown that moderate heating (up to but not exceeding 75° C.) of cobra venom has only the effect of coagulating the contained albumins and exerts but little influence in diminishing the power of the uncoagulable albumose to which this venom owes its toxicity. For the further elucidation of the question a 0·1 per cent. solution of each venom in distilled water was prepared. These solutions were then heated in a water bath for half an hour at 73° C. A copious coagulum was obtained in each case and was filtered off. The filtrates were then evaporated to dryness over a water bath at 60° C. Solutions of a strength of 0·1 per cent. were made with the residues and subcutaneous injections of them were administered to rats. In this way it was found that 0·07 milligramme of the cobra poison residue was fatal to a rat, whereas of five rats which received respectively one, two, three, six, and ten milligrammes of the daboia poison residue not one showed any symptoms. In conclusion, Captain Lamb and Dr. Hanna discuss some properties of the anti-venomous sera of Professor Calmette of Lille, a subject on which they have already written at some length in THE LANCET of June 15th, 1901, p. 1661.

(1) *The Art of Cooking for Invalids;* (2) *Hot Puddings, Soufflés, and Fritters;* and (3) *Breakfast and Savoury Dishes.* By FLORENCE B. JACK. (Nos. 2 and 3 belong to the Domestic Arts Series.) London and Edinburgh: T. C. and E. C. Jack. The price of No. 1 is 2*s.* and the price of the other two is 1*s.* respectively.—"The Art of Cooking for Invalids" is a very sound little book, but, despite the title, the art of cooking for an invalid is, or should be, exactly the same as the art of cooking for anyone else. The materials in both cases should be good and fresh; everything must be clean and no such abominations as "cooking eggs," "cooking butter," or, worst of all, "cooking brandy or wine" should be allowed. If anything is not good enough to be eaten uncooked it is most certainly not good enough to be eaten when cooked. All the recipes in this little book are simple and easily understood, stress being laid upon cleanliness and neatness in serving. The two volumes of the Domestic Arts Series are likewise plainly written and practical. More especially are we pleased with the recipes for omelettes in "Breakfast and Savoury Dishes," although No. 92 is somewhat complicated. But no one can make an omelette from reading directions in a book and one practical lesson is worth 40 recipes.

Analytical Records
FROM
THE LANCET LABORATORY.

METHYL RHODIN.

(R. W. GREEFF AND CO., 20, EASTCHEAP, LONDON, E.C.)

METHYL rhodin is described as an acetylated wintergreen oil—that is to say, it is an acetyl-salicylate of methyl, standing in the same relation to wintergreen oil or methyl salicylate as does acetyl-salicylic acid or aspirin to salicylic acid. It is a white crystalline powder with a faint smell of oil of wintergreen. It is very soluble in alcohol and in fatty oils but is not dissolved to any extent by water. Methyl rhodin, we find, readily yields salicylic acid on saponification with potash. It is regarded as a favourable substitute for salicylic acid or the salicylates in the treatment of rheumatic disorders and is said to be free from objectionable secondary effects.

ETHYL CHLORIDE: (1) PURE; (2) WITH COCAINE; (3) WITH CARBOLIC ACID; AND (4) WITH IODOFORM.

(HEDLEY AND CO., 92, HARROW ROAD, LEYTONSTONE, LONDON, N.E.)

We have received specimens of ethyl chloride contained in tubes which are convenient for applying this very volatile liquid for the purpose of producing local anæsthesia. The tubes are fitted with an automatic stopper which is kept closed by means of a spring which can easily be released by the thumb, the hand at the same time grasping the tube. The ethyl chloride is of special purity for the purpose. Solutions are made of cocaine in ethyl chloride which is useful in dental work; of carbolic acid in ethyl chloride, the anæsthetic on evaporation leaving a film of antiseptic; and of iodoform in ethyl chloride which is useful in the treatment of septic conditions of the throat. These tubes are very convenient in practice and their contents are of trustworthy purity.

SOLOID ROMANOWSKY STAIN.

(BURROUGHS, WELLCOME, & CO., SNOW HILL BUILDINGS, LONDON, E.C.)

We have received a specimen tube of soloid stain, which is Leishman's modification of Romanowsky's stain (methylene blue and eosin) for blood staining. For the purpose one soloid is dissolved in 10 cubic centimetres of methyl alcohol and a few drops of this solution are added to the blood film and allowed to remain for four or five minutes. The stain is then followed by twice the volume of distilled water when the red tint in the corpuscles and the blue colour in the

nuclei will be developed. After further staining the film may be washed in distilled water, dried in air, and mounted in xylol balsam.

(1) LECITHOL; AND (2) GONOSAN.

(THOMAS CHRISTY AND CO., 4, 10, AND 12, OLD SWAN-LANE, UPPER THAMES-STREET, LONDON, E.C.)

(1) We have received specimens of "perles" each of which contains 0·05 gramme of lecithol or ovo-lecithin dissolved in olive oil. The value of ovo-lecithin as an organic phosphorus compound in diseases of nervous origin is well known. Tablets of chocolate are also prepared suitable for administering ovo-lecithin to children. Each "square" contains 0·05 gramme of ovo-lecithin. (2) "Gonosan" is the ugly compound name given to a solution of the essential resins of kava-kava, the root of *Piper methysticum*, in pure sandalwood oil. The root has been used from time immemorial in the Polynesian islands for gonorrhœa. The combination is said to diminish pain, to hasten the disappearance of the discharge, and to prevent complications.

GLEN SPEY GLENLIVET WHISKY.

(W. AND A. GILBEY, LTD., THE PANTHEON, OXFORD-STREET, LONDON, W.)

The analysis of this whisky was as follows: extractives, 0·36 per cent.; alcohol, by weight 41·30 per cent., by volume 48·75 per cent., equal to proof spirit 85·43 per cent. The whisky contained the following amounts of secondary constituents recorded in grammes per hectolitre of absolute alcohol present: acidity reckoned as acetic acid, 84·42; aldehydes, 10·05; furfural, 2·67; ethers reckoned as ethyl acetate, 79·59; and higher alcohols, 201·00. These results of analysis are thus in favour of the statement on the label being an honest description—that is, that the whisky is a pure malt spirit distilled exclusively from barley. The age is stated to be six years and our analysis at any rate indicates an amount of storage sufficient to make the whisky mature and free from the injurious products of new whisky. The flavour is decidedly malty and smoky though soft and mellow. The evidence of both the palate and chemical analysis is thoroughly in accordance with the description given of the whisky on the label of the bottle; it is a matured all barley-malt whisky.

LAMA QUINA WINE.

(GRAINGER AND SON, 21, MINCING-LANE, LONDON, E.C.)

This wine is described as "*vin tonique naturel.*" It is a syrupy red wine of port style, showing a similar alcoholic strength. It is slightly bitter to the taste and contains cinchona bark extractives. Analysis gave the following results: alcohol, by weight 21·30 per cent., by volume 26·04 per cent., equal to proof spirit 45·63 per cent.; extractives, 12·81 per cent.; mineral matter, 0·31 per cent.; sugar, 10·40 per cent. It is stated "*ce vin est pur sans addition d'alcool*" which cannot strictly be the case since all port wine is fortified and the strength of Lama Quina wine is far beyond that which normal fermentation can yield. As a rule, we do not approve of "medicated" wines; when the patient requires a drug it should be prescribed for him by a qualified medical man, when he requires wine he will be wiser to get the pure article unmedicated.

TRISCUIT.

(THE SHREDDED WHEAT CO., 6 AND 8, EASTCHEAP, LONDON, E.C.)

The "triscuit" forms a palatable and nourishing article of diet and the statement that it consists of the whole wheat berry is borne out by our analysis. Further, in the course of preparation part of its nourishing constituents is converted into a soluble state. The "triscuit" consists of a series, so to speak, of wheat filaments interlaced in such a way as to present the appearance of a lid of a miniature wicker basket. Our analysis gave the following results: moisture, 7·30 per cent.; starch, 66·27 per cent.; soluble starch, dextrin, &c., 9·00 per cent.; proteids, 13·93 per cent.; fat, 2·20 per cent.; and mineral matter, 1·30 per cent. The "triscuit" is somewhat hard and crisp which should be a dietetic advantage since it requires complete mastication before it can be swallowed, in the same way as does dry toast or stale bread. The flavour is "wheaten" and "nutty." The analysis shows that "triscuit" is an entirely unimpoverished wheat food.

MALTA VITA FOOD.

(THE MALTA VITA PURE FOOD CO., 102, FENCHURCH-STREET, LONDON, E.C.)

According to our analysis and examination "malta vita" consists of a cereal food modified by malting and cooking. The carbohydrates are to a very large extent easily soluble in cold water. The preparation consists of crisp flakes which have been browned by baking. It has a very pleasant biscuit-like flavour. The results of our analysis were as follows: moisture, 7·00 per cent.; starch and dextrin, 59·31 per cent.; maltose, 14·28 per cent.; proteid, 14·55 per cent.; fat, 2·16 per cent.; and mineral matter, 2·70 per cent. This analysis is satisfactory and shows that the food contains an excellent proportion of all classes of nutritive material.

CHELTINE SOLUBLE MALTOSE FOOD.

(CHELTINE FOODS, LIMITED, CHELTINE WORKS, CHELTENHAM.)

We find this food, according to our analysis, to be correctly described and no exception can be taken to the claims made in regard to its suitability for infants and invalids when prepared in the way directed. The food is almost entirely soluble in water and contains no starch. Our analysis gave the following results: moisture, 3·90 per cent.; malt and milk sugar, 50·44 per cent.; dextrin and other carbohydrates, 34·06 per cent.; fat, 1·40 per cent.; and mineral matter, 2·30 per cent. The preparation by itself is, of course, deficient in fat, but the food is intended to be made with milk and thus a product is obtained which contains an excellent proportion of all classes of nutritive material.

KOPA'S FOOD.

(L. KOPA AND CO., 28, GLASSHOUSE-STREET, REGENT-STREET, LONDON, W.)

We can find no dietetic novelty about this preparation. It contains cocoa and certain carbohydrates. The total nitrogen amounted to 1·65, the moisture to 10 per cent.; and the mineral matter to 4·50 per cent. The somewhat high proportion of mineral matter is due in some measure to the cocoa present.

KROOMDA CURRIES.

(MESSRS. C. DICKINSON AND CO., 30, MIDDLESEX-STREET, ALDGATE, LONDON, E.C.)

These curry preparations are certainly good and make an excellent dish. They are based on a quite simple formula of someone who has resided in India and with whom we quite agree that the curries sold in England are not at all like the original kind. Even when the curry powder may be good the average English cook knows little or nothing about preparing a satisfactorily seasoned dish with it. We have examined "curry gravy" and "prawn curry," both of which require no preparation except warming to a degree suitable for serving. In the former case, of course, any material suitable for "currying" may be added and the whole may be cooked slowly for a few minutes. We could trace no objectionable constituents in the preparations and there was no evidence of metallic contamination. The prawns in the prawn curry were somewhat tough.

EAU DE TOILETTE (LUBIN).

(PARFUMERIE LUBIN, 11, RUE ROYALE, PARIS.)

This is a very agreeable preparation for the toilet; it is fragrant, aromatic, and has a soothing effect upon the skin. According to our examination it yielded 2 per cent. of residue on evaporation which consisted largely of glycerine. It is a very pleasant and wholesome adjuvant to the toilet.

THE LANCET.

LONDON: SATURDAY, JUNE 20, 1903.

A Week of Munificence.

THE week immediately previous to Hospital Sunday was remarkable for the outburst of public benevolence directed towards the Metropolitan Hospitals. On June 7th their Majesties the KING and QUEEN attended the afternoon service at St. Paul's Cathedral. The service was, as all our readers know, in connexion with the Hospital Sunday Fund, that annual occasion being observed in the metropolitan cathedral one week before the date fixed for Hospital Sunday in other places of worship. The remarkable sum of upwards of £5000 was received at the collection which followed upon the Bishop of STEPNEY'S eloquent address, a sum which we think has never before been received at any church collection made for civil needs. On June 8th the KING attended a dramatic performance at His Majesty's Theatre where Mr. TREE and his accomplished colleagues provided a splendid theatrical entertainment, the pecuniary receipts at which were handed to Guy's Hospital. An historic tragedy by Mr. ALFRED AUSTIN, the official poet laureate, and a neat adaptation from a well-known story by Mr. RUDYARD KIPLING, surely the poet laureate of the people, were played, and the exchequer of Guy's Hospital gained by £2100. On June 9th an enormous concourse of ladies and gentlemen attended a ball at Albert Hall in aid of the London Hospital, and it is anticipated that the charity will benefit to the extent of at least £4000. On June 10th a bazaar was opened at the Prince's Skating Club in aid of the Royal Free Hospital. The public, as well as the world of fashion, flocked to it and we understand that the admirable institution in the Gray's Inn-road may expect to receive a substantial addition to its funds through the strenuous endeavours of the stall-holders. This is a very remarkable group of events to have occurred on four consecutive days and shows that the public are really alive to the needs of the London hospitals—are really growing more appreciative of the work that is done in them and of the responsibilities that they discharge despite their precarious pecuniary position. It should be added that during the week over £700 were received by King Edward's Hospital Fund for London, showing that the extraordinary collections that were being made and the imminent approach of Hospital Sunday had no tendency to arrest the flow of day to day benevolence.

Leaders of society, whether leading by right of royal position or by the possession of brains, birth, or money, have all contributed to this admirable flow of munificence towards the London hospitals, and by so doing are furnishing the sociologist with a lesson that he cannot but learn while depriving the cynic of some of his cheapest sneers. The young writer, who has not yet arrived, and the older writer, who feels that he is beginning to depart, are each prone to run amok at leaders of society and to describe them as wholly given up to the pursuit of wealth and pleasure, as being meanly subservient to those who can enrich them or minister to their ambitions or feed them, but callous to the needs of those from whom they can hope to receive no advantages. Of course there are such people, but it should give pause to the writers who describe all society as composed of them—"pigs in clover" as a recent clever novel has labeled them—when the part that is being played by the KING, his Court, his blood relations, and his friends in the movement, now taking an organised shape for raising the metropolitan hospitals from their slough of debt, is considered. In addition to the various sums received in the manner that we have recorded, mention should be made of other functions taking place last week, all of which constituted an expression of public interest in hospital work and the care of the indigent sick, and with all of which members of the Royal Family were happy to associate themselves. On June 8th the PRINCESS OF WALES opened a new nurses' home in connexion with the Lying-in Hospital, Endell-street, W.C., and on the same day the Duchess of ALBANY opened the new buildings of the Kingston Nursing Association. On June 11th the KING and QUEEN made a personal visit to the London Hospital, where HIS MAJESTY inaugurated a new out-patient department, the cost of the construction of which has largely been defrayed by a splendid anonymous gift, while his Consort opened the new rooms for the treatment of the sick by the Finsen light, a method of therapy in which HER MAJESTY has already displayed practical and generous interest. On the same day the Duke of CONNAUGHT presided at the festival dinner of the Royal Blind Pension Society and PRINCESS HENRY OF BATTENBERG was present at the meeting of the Colonial Nursing Association at the Royal Hospital, Chelsea. On the last day of the week PRINCESS LOUISE (Duchess of Argyll) opened the new buildings of the Hospital for Epilepsy and Paralysis in Maida Vale. Such actions cannot fail to be of the greatest use in displaying the urgency of the needs of many of our London hospitals. By the presence of the Royal Family and their *entourage* upon these occasions a measure of publicity is secured that could be secured in no other way, and it is undoubted that the awakening of the general public conscience to their debt towards the noblest of our charities, which we consider now to be taking place, has been largely due to the acts and words of the KING and his family.

"Charity uncovereth a multitude of shins," said the flippant person in the play, alluding to the prevalence a few years ago of amateur skirt-dancing at entertainments given with benevolent object. The jibe was not intended as a compliment to the dancers and it is not unusual to hear remarks derogatory of balls, dramatic performances, and bazaars which have their *rationale* in a collection for a hospital. Why, it is asked, cannot hostesses and guests, actors and audience, enterprising stall-keepers and defrauded purchasers, alike send their cheques to the hospitals without expecting discount in the nature of some form of dissipation? The question is easily answered. The needs of a charity cannot be understood by everyone at a glance, but a bazaar, a dance,

or a play needs no explanation. We, who know the value of medical charities and their sore need of support, marvel at what we are too ready to think is the callousness of those who appear to demand amusement for themselves before they will contribute to the funds of the hospitals. The public is not callous but rather uninstructed. If it were possible to make the needs of charity as clear to a thoughtless world as are the delights of a dance it is certain that many would cheerfully give their money without asking for discount in the shape of entertainment. But as it is not possible, wise people view with equanimity the accepted methods of extracting subscriptions and are grateful to the leaders of society for their labours on behalf of the sick poor.

The Summer Session of the General Medical Council.

THE summer session of the General Medical Council was a singularly uneventful one. The most important debate ranged round the unfortunately strained relations between the Council and the two great English medical corporations, and upon this subject we have already expressed our views. The rest of the session was largely taken up by the hearing of penal cases. These cases, as Sir WILLIAM TURNER foreshadowed in his opening address that they would be, were unusually numerous and in many of them the characters of the medical men in question were seriously involved. As a consequence the profession awaited with interest the methods of the General Medical Council in dealing with them, and the verdict of acquittal that most of those implicated secured, either with or without modification, has not been hailed as quite satisfactory. Let us not be understood as arguing that any particular accused medical man has been able to retain his place on the Register when he should have been removed from it; to make such a suggestion would be grossly unfair to all parties. For this reason we are unable to publish the communications that we have received, or to do more than to quote generally the impression that we know to have been created; but it is useless to disguise the fact that the sterile result of the work of the Council as a penal body has given rise to much adverse comment. Last week a correspondent, noting that certain charges of "infamous conduct in a professional respect" had been dismissed by the Council as non-proven, called attention to the stigma that has been affixed upon innocent people, and undoubtedly this is a point of view worthy of consideration; but it is merely a side-result of the circumstances. No charges are heard by the General Medical Council or preferred by either of the medical defence associations without deliberation; anonymous accusations are not attended to. We have every sympathy with those gentlemen against whom charges are brought without being sustained, but we cannot subscribe to the view that such charges are, as a rule, made in a spirit either of vindictiveness or hasty irresponsibility. The large proportion of non-proven verdicts that are found by the General Medical Council in the penal cases that come before it is due to the determination of the Council to convict only upon the most incontrovertible evidence. The members of the Council do not form a legal tribunal, they are at a disadvantage compared with a law court in taking evidence, and they possess but one punishment for all professional sins. The most shameful breach of honour or morality and the most trivial and accidental lapse from the code of professional ethics must, if punished, be punished alike by erasure from the Medical Register. The Council rightly declines to exercise its tremendous power save upon the clearest grounds, for it recognises that removal from the professional roll means the ruin of the sentenced man. Strong suspicion of a practitioner's methods may lead to a perfectly legitimate accusation of him before the General Medical Council and yet the Council may be right in acquitting him. The number of non-proven verdicts does not connote in our minds any supineness on the part of the General Medical Council; it only serves to remind us how unfortunate it is that the Medical Acts supply the Council with such clumsy machinery with which to arrange a penal code. It is to be hoped that the short Bill now before Parliament, which provides for temporary removal from the Register of the names of offenders, will soon become law so that the Council may be able to attempt in some degree to fit the punishment to the offence.

The Trinidad Epidemic.

OUR readers will doubtless recall that some weeks ago[1] we directed attention to the singular conflict of opinion that had arisen between the medical authorities of Trinidad and Barbados respecting the outbreak in the former island of an epidemic eruptive disorder which bore very marked resemblance to the outbreak of small-pox from which Barbados has recently suffered, at great loss to her trade in consequence of quarantine restrictions. It will be remembered that Mr. J. F. E. BRIDGER, who was familiar with the character of the Barbados disorder, had been sent to report on that of Trinidad and that the tenour of his report was to the effect that undoubtedly Trinidad was the seat of small-pox, which was spreading through this land mainly because its true nature was being disregarded and patients were being allowed to go about while still in an infective state. The profession in Trinidad had expressed its dissent from Mr. BRIDGER'S conclusions and appeared to regard the disease as something new, being largely influenced by the mildness of its type. We endeavoured to reconcile these conflicting opinions and pointed out that for the last few years a similar mild eruptive varioloid disease had been extending over Canada and the United States, and we considered that from the epidemiological standpoint it was highly probable that the disease, whatever it might be called, was the same in all these places. We even ventured to think that in view of the grave interests involved it might be well if an authoritative opinion by experts could be obtained by personal investigation of the Trinidad cases.

It is with a sense of relief which will be shared by all nosologists, that we are now enabled to record a distinct change in the views of the Trinidad authorities. We have before us a copy of a leaflet issued by the medical officer of health, headed "The Prevailing Epidemic: How to Prevent

[1] THE LANCET, April 18th (p. 1121) and May 2nd (p. 1248), 1903.

it Spreading," which compels the conviction that the disease is *now* recognised (the leaflet was issued in May) to be small-pox, although that dreaded word does not appear in its paragraphs. Moreover, a note is appended which states that its recommendations have been "submitted to the medical practitioners and have been generally approved of by them." These recommendations are drawn up clearly and concisely, and convey very plain directions as to the means to prevent contagion. There is not one of them which is not applicable to small-pox, whilst some show plainly that this is the disease which is in the minds of the authorities.

We may briefly mention a few of the points which justify the above conclusion. The leaflet opens with the statement that "the disease is not in the air, as is generally supposed. It is catching and usually shows itself *about 14 days* after exposure to the source of infection." (The italics in this and other cited passages are ours.) Here is a statement which proves that the incubation period of the Trinidad disorder is the same as that of small-pox. Like that disease it is emphasised that it spreads from person to person and the first and second recommendations deal with measures to be taken to avoid contagion from the sick, including the disinfection of bedding and clothing. No. 3 states that "the disease is catching until the spots are dry and *until all the dead skin has fallen off*." This view was not apparently held at the time of Mr. BRIDGER's visit, for he reported that cases were not detained in hospital then so long as is usually deemed necessary in cases of small-pox; and to this neglect he attributed much of its spread. It need hardly be said that the statement strictly conforms to the general belief as to the infectivity of variola. Upon it is based the recommendation for persons who have the affection, "even in a mild form," to keep themselves apart from others and to abstain from occupations and trades which may be the means of conveyance of the contagium until the period of infectivity is passed. "Children suffering from the disease or *coming from a house affected by it* should remain away from school until they have fully recovered from it." Clearly the disease is regarded as being quite as infectious as small-pox, and it is further recommended (No. 6) that "all healthy persons should avoid coming into close contact with persons suffering from the disease."

It might be said that it does not follow that there should not be a "third disease," a "varioloid varicella" or whatever it may be termed, just as infective as variola and having a similar incubation period, to which all the foregoing recommendations are applicable. Granting this it would hardly be in accordance with scientific knowledge to find the hybrid disorder influenced by vaccination, as is now admitted to be the case. We say "now admitted" because, if we mistake not, in the earlier stages of the controversy a great point was made against the Trinidad disease being variola because it bore no relation to vaccination. Mr. BRIDGER adduced evidence to the contrary and we now find the Trinidad medical officer writing: "It has been found by experience that persons who have been *recently vaccinated* (that is, within about two years) *as a rule escape the disease*, or get it in a mild form only. *All persons not thus protected are strongly recommended to be vaccinated.*" We regard this as establishing the truth of Mr. BRIDGER's contention that the Trinidad and Barbados outbreaks are one and the same disease, each being of the nature of small-pox. We would fain hope that the change which has obviously come over the minds of the Trinidad profession on this question will be frankly and freely admitted. It can hardly be that Trinidad, which imposed such restrictive quarantine on Barbados's commerce, is endeavouring to avoid a similar fate by declining to state openly, what is tacitly admitted, that the "prevailing epidemic" which in Paragraph 8 is termed "the pox," is the disease known throughout the world as "the small-pox."

Sanitary Inspectors and their Powers.

THERE is still, it would seem, some virtue in the principle that an Englishman's house is his castle. This, at any rate, is a legitimate inference from a decision recently given by Mr. ROSE at the West London Police-court in regard to proceedings taken by the Fulham Borough Council against a person who refused admission to one of its sanitary inspectors. It was believed that ice-cream was manufactured on the premises and it was claimed on behalf of the council, in its capacity as sanitary authority, that this fact afforded sufficient ground for the inspector's entry. After adjourning the case for due deliberation Mr. ROSE came to the conclusion that under the terms of the Public Health (London) Act, 1891, there is no indiscriminate power of entry and the summons was consequently dismissed with costs.

The council, by its solicitor, relied upon Section 116 which contains the following words:—

"If any person wilfully obstructs any member or officer of a sanitary authority or any person duly employed in the execution of this Act he shall be liable to a fine not exceeding £5."

At first sight this would appear to supply adequate powers. It is, however, a principle in the interpretation of statutes that where a matter which might be covered by general expressions is separately and specifically dealt with elsewhere it is thereby removed from the operation of the wider clause. Such separate treatment of the powers of entry is in this case to be found in Section 115. It may therefore be assumed that refusal to admit is not a wilful obstruction of the kind meant to be provided against by Section 116 and this view is strengthened by the order of the sections.

The liability to the £5 fine appears to attach only to the three cases of refusal which are mentioned in Section 115 (2) (*b*) and which are briefly:—

i. Where entry is for the purpose of carrying into effect an order of a court of summary jurisdiction.

ii. Where "it is proved that the refusal or failure is with intent to prevent the discovery of some contravention of this Act or any by-law under this Act."

iii. Cases coming under special enactments.

Of these only ii., which is therefore given verbatim, could have any applicability to the present case and it was excluded by the fact that it was not alleged that any nuisance was caused by the defendant's business.

The only machinery available is consequently that

supplied by Section 115 (3) which is to the following effect:—

"If a justice is satisfied by information on oath (*a*) that there is reasonable ground for such entry and that there has been a refusal or failure to admit to such premises, and either that reasonable notice of the intention to apply to a justice for a warrant has been given or that the giving of notice would defeat the object of the entry; or

(*b*) That there is reasonable cause to believe that there is on the said premises some contravention of this Act or of any by-law under this Act, and that an application for admission or notice of an application for the warrant would defeat the object of the entry,

The justice may by warrant under his hand authorise the sanitary authority or their officers or other person as the case may require to enter the premises," &c.

When action is taken in this way the penalty for obstruction becomes a fine not exceeding £20. It may well be considered whether a smaller penalty more easily obtained would not be more to the purpose.

Although no exception can well be taken from the legal standpoint to the judgment delivered by the magistrate its effects can hardly fail to be regrettable. The general public does not appreciate nice points of law and in so far as the average householder familiarises himself with this case he will probably conclude that he is justified by it in refusing admission to the sanitary inspector when he thinks proper. By acting in such a way he will materially impede the sanitary authority in its work while unconsciously laying himself open to even greater possibilities in the matter of punishment than those which he thinks he has escaped. The position of the sanitary inspector is often more than sufficiently difficult at present. He is not a welcome visitor in general and even with the weight of influence which his uniform brings to bear he meets with as many obstacles in the execution of his duty as can be interposed without his being roused to the drastic retaliation of a summons. The gusto can well be imagined with which the sweater or the purveyor of diseased meat will now shut the door in his face unless, and probably although, he comes armed with the formal warrant. Nor is the warrant always easy to get. The justice has a good deal of latitude in deciding what constitutes "reasonable ground" for entry and, as appears from the leading case of Vines *v.* North London Collegiate School, it is not enough to show that the sanitary inspector was acting honestly with a view to the discharge of his duties.

Nobody—except, perhaps, the proprietor—will question the expediency of having an ice-cream manufactory under close supervision by the sanitary authority, but if the authority has to be constantly hampered by the necessity of obtaining warrants the desired supervision can hardly be carried out in a satisfactory manner. It might be thought that in this instance assistance could be obtained from the portion of the Act devoted to the subject of unsound food. By Section 47 (1) (*b*) "any medical officer of health or sanitary inspector may at all reasonable times enter any premises and inspect and examine any article ..... deposited ..... for the purpose of sale or of preparation for sale," but it appears from Clause (6) of the same section that entry in this case also is controlled by the conditions already referred to as given in Section 115. It is possibly the result of some oversight in the drafting of the Act that the sanitary authority is so greatly restricted in its powers of entry. The matter is hardly one calling for special legislation, but when in the fulness of time the law relating to public health is brought up to date this important branch of the subject ought not to be neglected.

Annotations.

"Ne quid nimis."

THE PRINCE OF WALES ON THE RELATIONS OF THE PUBLIC AND THE MEDICAL PROFESSION.

THE Prince of Wales made an admirable speech at the dinner in behalf of the Royal Medical Benevolent College last week, as our readers have been able to judge for themselves, and probably they consider, as we do, that the medical profession owes a deep debt of gratitude to His Royal Highness for his pronouncement upon the relations that should unite the public and the medical man. The intimate and trusted friend of his patients from their cradles to their graves was the picture which the Prince of Wales, as a member of the public, drew of the ideal medical man, and we are certain that this is the position to which all of us who are in family practice aspire. The medical man's ministrations cannot be given merely in response to the ordinary laws of supply and demand. The grave and sacred responsibilities which he is compelled to assume beside the bed of sickness, responsibilities that may be wellnigh as important towards the patient's family as towards the patient, make it impossible that his relations with the public should be regarded merely from the point of view of mercenary service. Not a day goes by that more is not asked of the medical practitioner by some of his patients than can ever be repaid by money; and not a medical man among us but owns cheerfully that this is the circumstance of his life that brings sweetness into the round of toil. In the blackest hour of anxiety and in the brightest hour of hope the medical man is accepted as a friend whose sympathy may be assumed and whose unsparing efforts can be taken for granted. Is not this a proud position? But the practical side of the medical life must not be lost sight of, and it is undoubted that the pecuniary rewards of our professional career are not great. In particular it is exceedingly hard for the young practitioner to make any provision in the early days of practice for the future, so that early death—alas, not an uncommon thing when the work to be done is so arduous and dangerous—is apt to mean poverty (poverty, perhaps, of the direst sort) for a young widow and her children. Mainly to meet such terrible cases the benevolent side of Epsom College was founded and further support is asked for it upon the grounds indicated in the Prince of Wales's warm tribute to medical altruism. The public must always owe the medical profession a debt and they cannot pay it better than by subscribing to such an institution as Epsom College. The benevolent side of the College offers a shelter to the declining years of one set of pensioners and opportunities of a bright entry into life to another set. And whether it is the aged medical man or his widow whose infirmities preclude continuance of an unaided struggle for existence, or whether it is the little lad whose early orphanage has robbed him of his legitimate start in life—each is a legitimate object of public generosity. We are glad to see that the Prince of

Wales, in making this claim for the foundation of Epsom College in unmistakeable terms, laid stress upon the fact that the College as a whole was a highly successful public school, no more requiring public subvention than, say, Eton. It is only the charitable side that requires assistance and the assistance can be asked for with complete dignity as a right.

BABY SHOWS.

THE surest way to reach a mother's heart is through her child and commercial enterprise at Walthamstow has apparently not been slow to turn this knowledge to practical account, for we recently noticed in a morning contemporary the following paragraph: "A fat baby competition organised by a local firm of furniture dealers was one of the most popular holiday attractions at Walthamstow. Nearly 50 babies, all born in March, came to the scales which were erected in the firm's shop window. The winner tipped the beam at 16½ pounds. At the conclusion of the weighing prizes were awarded." Unfortunately, baby shows of this kind have a tragic as well as an amusing side, for the reason that they encourage the belief, which is far too generally entertained, even among the educated classes, that obesity in infants is synonymous with health. It is, however, a matter of clinical experience that a fat baby is unhealthy, with little resistance to disease, and likely to succumb on the least provocation to any of the so-called minor ailments of infancy. It is very greatly to be regretted that baby shows, if they are to be held at all, cannot be utilised for educating the laity to admire in babies those "points" which are genuinely deserving of admiration and expressive of a physiological condition, instead of acting, as they do, as direct inducements to over-feeding with foods which fatten but do not produce sound, healthy tissues. Some little time ago Mr. Rowntree in his admirable work entitled "Poverty" drew attention to the fact that the dietaries of a large proportion of the poorer classes were deficient in nitrogen-containing or proteid foods to a degree which was incompatible with the maintenance of a normal standard of health. Unfortunately, with few exceptions tissue-forming or proteid foods are expensive, while the nitrogen-free varieties such as the carbohydrates are comparatively cheap and hence there are economic reasons why the small wage-earner should, in the belief that he is laying out his money to the best advantage, provide himself and his family with foods which are quite unsuitable. The effect of this injudicious dieting is even more serious in the case of children than in the case of adult persons, for in addition to the necessity for the proteid elements of food for the repairing of tissue there is a necessity for them to satisfy the needs of growth. An examination of the dietaries of that considerable number of infants of the poorer classes who are artificially fed discloses the fact that while they are relatively starved as far as proteids and fats are concerned they are grossly overfed in respect of the carbohydrate elements, with the consequence that in addition to an unnecessarily large storage of glycogen and fat in such infants there is also a large predominance of physiologically unsound tissue approximating somewhat closely to the embryonic type, deficient in nitrogen and liable to undergo degenerative changes of the hyaline, mucoid, or carbohydrate type. The appearance of these carbohydrate- or sugar-fed infants is highly characteristic. There is a curiously translucent and almost opalescent appearance of the tissues; they are hypertrophic square-headed infants and to the touch they are cold, gelatinous, and flabby, with none of the elasticity and tone which characterise the tissues of the vigorous, healthy, breast-fed infant. It is these sugar-fed, gelatinous babies who receive the prizes at infant shows and are held up by their proud parents as paragons of vigorous babyhood. For this reason it is impossible to doubt the mischievous effect of fat baby shows such as that recently held at Walthamstow. Baby shows properly conducted, the prizes being awarded to those babies who manifested the largest number of really good "points" and the clearest evidence of careful management, would be a practical and fruitful means of educating the laity in the true principles of infant culture and at the same time would disabuse the minds of mothers of many of their misconceptions, and among others of their admiration for the hypertrophic pathological types which Raphael and others among the great masters have perpetuated on canvas as pleasing standards of vigorous babyhood to be copied and admired.

SIR ERNEST CASSEL'S GIFT FOR THE RELIEF OF OPHTHALMIA IN EGYPT.

Sir Ernest Cassel having given a large sum of money to the Egyptian Government for the relief of ophthalmia in Egypt it has been decided to send travelling dispensaries into the country for the relief of those sufferers who are unable to attend the already existing hospitals. There will be at first one of these dispensaries or ambulance hospitals which will have a couple of tents with beds for operation cases and for the more serious treatment of cases. This will travel about from place to place under the direction of an ophthalmic surgeon who will have under him an Egyptian assistant surgeon. If the experiment is successful the number of dispensaries will be increased. Mr. A. F. MacCallan has been appointed by the Egyptian Government to organise and to direct the enterprise with the title of "inspector of travelling ophthalmic dispensaries in Egypt." Mr. MacCallan was formerly senior house surgeon at the Royal London Ophthalmic Hospital (Moorfields) and at the present time holds the post of chief clinical assistant at the hospital. He will leave for Egypt immediately and has clearly the necessary qualifications to start the quaint experiment upon a sound basis. But what will be regarded as a sufficient measure of success to justify the making of further experiments, and who is to judge what is a success and what is a failure?

PARALYSIS AGITANS.

A VALUABLE "symposium" on paralysis agitans appears in the *New York Medical Journal* of May 2nd, and among the contributors are Dr. Joseph Collins, Professor M. Allen Starr, and Dr. Bernard Sachs. The facts observed and collected cover a very extensive field and refer mainly to the etiology, pathology, and treatment of this affection in their latest developments. Dr. Collins states in his paper that among 50 cases recently under his care 34 were males and 16 were females or 68 per cent. and 32 per cent. respectively. The average age at which the disease developed was 51 years. The youngest patient was 32 years of age and the oldest 72. He found paralysis agitans to be frequent among persons of Celtic descent and rare among the Hebrews. There was a history of neuropathic heredity in 13 of the cases or 26 per cent. and a history of paralysis agitans in the parents or uncles in six cases. Syphilis and alcohol were conspicuous by their absence as etiological factors. Worry and anxiety were traceable in seven cases and injury was assigned as a cause in the same number of cases. Dr. Collins stated his belief that "paralysis agitans was a disease of early senility, occurring as the reward of virtue." Professor Starr stated that a hereditary predisposition to the disease was met with in about 4 or 5 per cent. of cases, but that anxiety and injury appeared to him to bear a distinct etiological relation to paralysis agitans. He had never seen a patient absolutely cured of

paralysis agitans, but he had observed variability in the course of the symptoms and marked improvement in a very few. The disease did not appear to be a steadily progressive one. Hyoscine in doses of $\frac{1}{100}$th of a grain taken three times a day gave great benefit and relief to the patients, as did also Swedish movements and massage skilfully administered after a prolonged hot bath. Dr. Leszynsky said that the beneficial effect of hyoscine soon passed away and that patients were averse to taking the drug. The disease presented remissions at times and most of the patients were amenable to, and benefited by, mental "suggestion." He had tried the system of muscular exercises recently devised by Swaboda, which called for voluntary effort entirely on the part of the patient and dispensed with passive movements, and found that the patients appeared to benefit thereby. Dr. Stuart Hart had collected from Professor Starr's clinic at the Vanderbilt Hospital 219 cases of paralysis agitans, of which 139 were males and 80 were females. Only two of the total number of cases were under 30 years of age and they were both males. The disease began most frequently between the ages of 45 and 65 years. In six cases it was stated that the patient's mother and in three the father had had paralysis agitans, while in seven other cases brothers or sisters were said to have been affected. 40 patients could trace the beginnings of their illness to anxiety and worry and half of these also attributed it specifically to fright. Dr. Sachs said he was of opinion that paralysis agitans was distinctly a disease of middle and old age. The most important exciting causes were emotional excitement and some prolonged or exhausting disease. It contrasted with disseminated sclerosis which was a disease of early adult life. He had occasionally seen cases which, starting with symptoms like those of disseminated sclerosis, eventually developed into paralysis agitans. Professor Mendel of Berlin had recently recorded another case of the same nature which suggested that there might be some relationship between these two diseases. Dr. Sachs found that some form of "vibratory therapeutics" was the only satisfactory method of treatment, though hyoscine and other sedatives were also needed occasionally. Dr. Joseph Fraenkel stated that he had witnessed ten necropsies of cases of paralysis agitans. They all showed a remarkable freedom from arterio-sclerosis. As the result of inquiry he concluded that persons with paralysis agitans were rarely addicted to alcohol and rarely exhibited evidences of syphilitic infection, and to this extent he would indorse Dr. Collins's statement that the disease was "the reward of virtue." Dr. Harlow Brooks said that he could find no gross or naked-eye lesions in four cases of paralysis agitans which he had examined post mortem. Dr. J. Hunt said that the "premature senility" theory of paralysis agitans must be accepted in a limited sense and as applicable to the bulbo-spinal or central nervous system only since the arteries were healthy and free from senile degenerative changes.

THE MEDICAL PROFESSION AND ST. LUKE'S DAY.

OUR quotations from a correspondent's letter upon the above subject, together with our remarks thereupon, seem to have given pain to another correspondent. Out of consideration for himself we neither publish his letter nor do we give his name. With some things that he says we are in accordance. We have not always been able to approve of the conduct of the Guild of St. Luke as exemplified at the Evensong held in St. Paul's Cathedral upon St. Luke's Day. Our correspondent accuses us of endeavouring to introduce into the profession a clerical atmosphere. We did nothing of the sort, all that we urged was that it is a good thing for the members of the medical profession in any given town or district to meet together for the purpose of common worship. Our correspondent further says, speaking of the members of the medical profession, "the best and most independent among them are almost to a man agnostic and hold the clergy in low esteem." It appears to us that our correspondent, at least, is an agnostic, for the word means one who is without knowledge. All of us are agnostics in great part as regards the secrets of disease, of life and of death, and of what comes after death. But an agnostic is not an atheist, nor does he of necessity hold the clergy in low esteem. It is not our province to quarrel with any man's religion, but there are few men, whether Christians or not, who do not believe in some Power higher than themselves and we can see nothing but good in the assembling together of men already bound by the common chain of service to their fellows, for the purpose of worship, and thereby to confess that they owe something to the Power above humanity and also that there does come a time to all men, and especially to those of the medical profession, when human knowledge is at an end.

ALLEGED JEWISH RITUAL MURDERS AND THE CORPSE IN THE MEDIÆVAL PHARMACOPŒIA.

THE deeply rooted belief, once common in England and still apparently prevalent in Russia and Eastern Europe generally, that murders have been committed by Jews for ritual or magical reasons has of course no foundation in fact, but as a vulgar error it is interesting. Sir Richard Burton seems to have been of this opinion and is reported to have intended to undertake, if he did not actually do so, one of his exhaustive folklorist researches into the genesis of such legends as that of Little St. Hugh of Lincoln, a Christian child found dead in one of the "Jews' houses" in that city and popularly believed, at the time of his death in the thirteenth century, to have been crucified after undergoing the rite of circumcision. Though murder in this and similar cases is out of the question it is not improbable that some dark and cruel taint of Canaanitish superstition lingered on obscurely in the ghettos of the Middle Ages, just as cannibalism of a ritual kind is still found among obscure ascetic sects in India (the Bhauls and Aghoris), or as orgiastic practices were at one time rife, according to St. Epiphanes, among certain Christian heretics. Medicine, which from the point of view of folklore has much the same descent as superstition, was in the Middle Ages largely a Jewish art and was full of the relics of cannibalism and of the savage belief in the mystic efficacy as medicines to soul and body of human flesh, blood, and so forth. The cadaver in its various preparations, the blood and other humours of the living, as well as human hair, nails, and teeth, were held to be cures for a multitude of ills, but especially for epilepsy. In his remarkable tract, "De Remediis ex Microcosmo," Boecler, a candidate for a medical degree at Strasbourg, writing as late as 1711, gravely discusses the uses to which all parts of the corpse and of the living may be put. Already, as his text proves, the opinion of many scientific physicians had become hostile to what we may call corpse medicines, but Boecler writes of them with an open mind and in the spirit of one who will not wholly condemn what was at one time universally accepted lest valuable medicaments should be lost to the Pharmacopœia. Human blood, he tells us, is used as a liniment in cases of skin disease. An *aqua divina* may be distilled from a properly dismembered body and when mixed with the blood of a sick man is sometimes put in front of a fire and held to be an augury of his recovery or decease according as the ingredients coalesce or not. Human flesh has a number of curative virtues and in the form of mummy dust is a particularly efficacious remedy for consumption and all affections of the chest down to a common cough, as well as for

epilepsy and paralysis. Boecler regrets with gruesome *naïveté* that religion and the law stand in the way of the man anxious for a constant supply of corpse medicines. Had he written in German instead of in Latin an angry populace might have accused him of murder and cannibalism and made him pay dearly for his beliefs. Nay, more, had he been a Jew we can imagine the kind of horrible punishments that would have been meted out to him.

THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY AND THE MEDICAL SERVICES.

THE council of the Royal Medical and Chirurgical Society has made an addition to its by-laws which should prove welcome to medical officers of the Navy, Army, and Indian Medical Services, not only at home but throughout the world. It has enacted that candidates for the Fellowship of the society belonging to these services may be proposed as Fellows on the nomination of one Fellow from personal knowledge instead of three being required as in the case of ordinary candidates. For this new class of Fellows the entrance fee has been reduced to £3 3*s.* and the annual subscription to £1 1*s.*, and even this reduced subscription will be remitted during absence abroad. This change should be largely availed of by all scientific workers in the services as a means of bringing them into active touch with the profession in London and of affording them a ready means of publishing results of original work and recording discoveries made by them in the exercise of their profession in remote parts of the empire.

THE OPIUM HABIT AND THE TYPES OF OPIUM-EATERS.

Dr. Smith Ely Jelliffe, neurologist to the City Hospital, New York, contributes to the *American Journal of the Medical Sciences* for May a study of the opium habit and of types of opium-eaters which brings together many facts not generally known and attempts to give some insight into the psychology of the opium *habitué*. The opium habit, like that of alcoholic indulgence, shows different results in its subjects. The drinkers of beer, gin, port, or burgundy, says Dr. Jelliffe, react differently to these liquors and the opium-eater varies correspondingly to a smaller extent. There are three main divisions of opium-eaters—viz., first, those who take the drug in the form of a medicinal preparation such as laudanum, paregoric, and the extract of opium, either by the mouth or the rectum; secondly, those who smoke it and inhale the fumes into the lungs; and thirdly, those who take morphia hypodermically. The second class comprises the largest number of victims of the opium habit. Information gathered from prison records, inquiries made among opium-eating circles, and a systematic investigation of the returns of sales of the drug by pharmacists in the State of Vermont, have led Dr. Jelliffe to the conclusion that the "frequent use of opium for purposes of pleasure is enormous and beyond computation and that its habitual use is certainly distributed in New York city among 30,000 individuals." The sale of opium in the State of Vermont, with its population of 187,000, is estimated at over 3,250,000 doses every month—a quantity equivalent to a daily consumption of one grain by every man and woman above the age of 21 years. This quantity largely surpasses the normal consumption due to the medicinal use of opium. Psychologically opium-takers, like other individuals, comprise persons of various temperaments. Not every *habitué*, adds Dr. Jelliffe, passes through the mental stages pourtrayed in the glowing descriptions of de Quincey. The average opium-taker desires or craves for exhilaration and mild excitement. The use of the drug can be traced into remote antiquity together with the consumption of other substances, such as coca, cannabis indica, and mescal. Dr. Jelliffe points out that priests and leaders of religious sects were particularly given to the use of these drugs to excite religious frenzy and ecstasy. The confirmed opium-eater, like the dipsomaniac, has an almost irresistible craving for "intense" states of consciousness and both lack self-control. Dr. Jelliffe recognises two clinical types of the opium-eater. In one type, which resembles dipsomania, there occur periodical irresistible cravings for the drug. The patient then indulges in a three or four days' debauch, smoking or consuming opium freely, after which he abstains from the drug for a period of several months or for one or two years. In the other type the habit is indulged in almost daily. The patient attends to his work during the day, but spends two or three hours in the evening in smoking opium. This he does four or five evenings during the week. "For a number of years he continues thus and does not suffer to any great extent, but when sudden intercurrent diseas comes the strain tells and pneumonia, typhoid fever dysentery, and gastritis prove fatal with greater frequency than in the non-habituated." As regards treatment, Dr. Jelliffe advises a judicious combination of the two following factors—viz., substitution of another class of sedative sensations by drugs such as the bromides and hyoscine, and substitution of a different set of ideas by mental suggestion. These two factors, he adds, have proved effective in the most intractable cases. Among alkaloids heroin is recommended as a substitute for morphine owing to its property of abolishing the craving for the latter, but the drug should be taken only under medical supervision.

HEREDITY AND ITS RELATION TO LIFE ASSURANCE.

PROFESSOR J. G. ADAMI of McGill University, Montreal, has published in the *Montreal Medical Journal* for April a paper dealing with some of the questions relating to heredity as it affects life assurance. The object of the paper, which was read before the Insurance Institute of Montreal, was to enable actuaries and laymen to judge of the weight that should be given to evidences of inheritance of one or other constitutional conditions in estimating the probable "expectancy of life" of the individual. Professor Adami pointed out that from the standpoint of transmission from parent to offspring diseases and tendencies to disease (diatheses) may be classified into two groups—viz., first those that are inherited in the strict sense (that is, as the result of the direct action of a morbific agent such as lead or alcohol upon the sperm cells and germ cells prior to, or at the time of, impregnation), and secondly those that are acquired by the fœtus during intra-uterine life, the medium of infection being the placental circulation. Diseases and diatheses of the second class should be termed "congenital." Regarded in this light, adds Professor Adami, there is no such thing as inherited syphilis or inherited tuberculosis. The germs or organisms of syphilis and tuberculosis would, if they were present in the ova or spermatozoa, in all probability destroy the vitality of these elements or render them incapable of union and further development. Hence the term "congenital" would be the correct one to use for so-called "inherited" syphilis, as this disease is acquired by the fœtus only after it has secured an attachment to the maternal tissues. Congenital tuberculosis is very rarely met with. The observations of Dr. Constantin Paul are quoted to illustrate the effect of plumbism of the father or mother on the life of the fœtus. When the mother was affected the children were often still-born or of feeble health; when the father was affected similar results, though in a less intense degree, followed. Thus out of a total of 32 pregnancies observed 12 were still-born and 20 were born alive. Of the latter, however, eight died in the first year of infancy, four in the second year, and five in the third year. The offspring of syphilitic

and tuberculous parents often showed tendencies to bodily mal-development and mental instability. Syphilitic children were dull and torpid, whereas tuberculous children—those of tuberculous diathesis but as yet free from tuberculous infection—were precocious and hyper-excitable. Parental tuberculosis, therefore, had a definite specific effect upon the offspring. Professor Adami pointed out that by the application of the graphic and mathematical methods devised by Professor Karl Pearson[1] it was possible to estimate the "expectancy of life" of candidates for life assurance who though themselves free from tuberculosis were inheritors of a tuberculous diathesis. There were certain hereditary conditions such as albinism, sexdigitism, and colour-blindness which did not affect longevity, but, on the other hand, hæmophilia did. A recognised "bleeder" was a distinctly unsafe life and must be shunned by insurance companies, for at any moment a trivial accident was liable to lead to a fatal hæmorrhage. Professor Adami concluded by referring to cases of offspring showing extreme variation from the parental type or so-called "sports." Such "sports" tended to perpetuate themselves in subsequent generations, but they were deficient in vitality and length of life. They had a special liability to succumb to disease and hence such individuals were to be accepted with caution for life assurance.

THE METROPOLITAN WATER-SUPPLY.

THE Water Examiner has lately issued his report on the metropolitan water-supply for the month of April. During the time under review the Thames water at Hampton, Molesey, and Sunbury was in good condition from the third to the twenty-ninth days. On April 1st, 2nd, and 30th it was of indifferent quality and on the last of these days the intake of the Chelsea Waterworks Company was closed. It would have been of interest to have been told whether on the same day the Thames river water was taken by the East London Waterworks Company and, as usual, filtered without undergoing the preliminary process of sedimentation. A full analysis of such water might prove of more use than the whole of the rest of the Water Examiner's report put together. In connexion with the Thames supply of the East London Waterworks Company it is of interest to note that the daily average amount of water derived during the month of April from the Hanworth "springs" was no more than 605,000 gallons, which is much below the amount usually obtained. The height of the Thames river level varied from a point one foot four inches above to one seven inches below the average summer level. At Molesey the total rainfall during the month amounted to 1·76 inches. The average daily supply delivered from the Thames was 111,394,207 gallons, from the Lee 48,223,407 gallons, from "springs" and wells 41,626,330 gallons, and from the Hampstead and Highgate ponds 258,158 gallons. The total daily average was 201,502,102 gallons for a population estimated at 6,484,238 and this represents a daily consumption per head of 31·08 gallons. The companies which do not profess to give constant service to their customers are the Kent, the New River, the Southwark and Vauxhall, and the Lambeth, and these give a constant supply to 99·8, 98·6, 95·4, and 78·5 per cent. of their clients respectively. The proportions of brown tint observed in a two-foot tube varied from three to 24 degrees of the standard in use. The water of the West Middlesex Company exhibited the deepest average tint of brown. Of late the quality of the water supplied by this company has deteriorated in comparison with that distributed by some of the other metropolitan companies and it is time that the attention of the directors should be called to the matter. Dr. T. E. Thorpe, C.B., F.R.S., the chemist employed on behalf of the Local Government Board, reports that the one sample of the water supplied by each of the metropolitan companies on April 23rd was fully examined. The results of these analyses show that the relative amount of the organic impurity of these specimens may be numerically represented as follows: Kent, 8; New River, 17; Southwark and Vauxhall, 24; Lambeth, 30; East London, 34; Grand Junction, 40; Chelsea, 41; and West Middlesex, 46. The water supplied by the New River Company was, as usual, of very good quality and that supplied by the Kent Company was excellent but hard.

[1] Philosophical Transactions, vols. 185, 186, and 187.

THE ELEVENTH INTERNATIONAL CONGRESS OF HYGIENE AND DEMOGRAPHY.

THE above-mentioned Congress will be held at Brussels from Sept. 2nd to 8th of the current year. The President is M. Beco, secretary-general to the Minister of Agriculture and chief of the Brussels Sanitary Department. The general secretary is Dr. Putzeys, professor of the Faculty of Medicine of the University of Liège, whose address is No. 1, Rue Forgeur, Liège. The hygiene division of the Congress is divided into seven sections—viz., (1) bacteriology; (2) the hygiene of foods, including chemistry and veterinary matters; (3) sanitary technology, including engineering and architecture with reference to hygiene; (4) the hygiene of trades and professions; (5) the hygiene of railways, shipping, and other methods of transport; (6) administrative hygiene, including the prevention of transmissible diseases, workmen's dwellings, and infantile hygiene; and (7) colonial hygiene. The Belgian State railways give facilities and fares at reduced prices. Other information can be obtained from the general secretary, Dr. Putzeys.

THE NEW BUILDINGS OF THE GLASGOW ROYAL INFIRMARY.

THERE has been for some time under consideration a scheme for the reconstruction of the Royal Infirmary, Glasgow, but it appears from a correspondence just published that the efforts in this direction of the controlling body of the infirmary have not met with the approval of at least one section of the inhabitants of the city. In January, 1900, ten architects were invited to send in suggestions for the new buildings which were to be erected and Sir Rowand Anderson was appointed assessor. After careful examination that gentleman recommended one of the designs but a committee of the managers disregarded his verdict and chose certain plans which he had not even included among the first four. With regard to these proceedings the local Institute of Architects has been much exercised in mind. Its secretary wrote on its behalf to protest against the selection and has continued to protest until at last the committee has declined to discuss the matter further. Objection is taken by the institute to what is regarded as the unfairness of departing from the ruling of the assessor, since it may be assumed that there was an implied condition that his advice would be acted upon unless there were good reason to the contrary. It is maintained that the accepted plans are in many vital particulars inadequate and out of date and that the infirmary, if erected in pursuance of them, will not conform to the most modern standards of design in this class of building. More than this, it is held that the plans adopted will result in the production of a structure dwarfing and irretrievably injuring the external appearance of the adjacent Cathedral. The institute has therefore requested that the whole of the designs should be submitted to one or more hospital experts before anything more is done and having, apparently, the courage of its convictions, has offered, if its contention is not supported, to defray the cost of such submission. For the committee it is stated that the plans now being followed are perfectly suitable ones and were in the first instance excluded by the assessor chiefly

on account of his views as to the style of architecture and the general elevation, points upon which the managers consider themselves quite able to form an opinion. This may be a correct attitude to assume. We do not suggest that in cases of this kind the judgment of an assessor must be invariably deferred to. He is only a means to an end and if that end can be attained more satisfactorily in some other way there is no cause for complaint. We are, however, quite in accord with the Glasgow architects in desiring that the canons of art shall be respected so far as is practicable. Without further evidence on the merits of the case it is impossible for us to speak with certainty, but it seems to us that the answer which the institute has received is hardly convincing and we trust that the managers of the infirmary will see fit to allay the misgivings which the publication of their intentions must raise in the minds of many. It ought to be feasible to erect hospital buildings without sacrificing elegance to utility and where, as here, the appearance of one of our all too few public monuments is concerned some concession may appropriately be made to popular sentiment.

RAILWAYS AND THEIR SANITARY ACCOMMODATION.

A DECISION was given by Mr. Curtis Bennett on June 15th which will no doubt be followed by an appeal and the settlement of an important point of law in connexion with sanitary matters. The Metropolitan Railway Company, constructing sanitary works at their station at Finchley-road, contended that they had power to do so under their private Act of Parliament and such other Acts affecting railway companies without giving notice to the local sanitary authority and receiving its approval of the work to be done. On the other side, a summons having been taken out against the contractor employed, it was contended that by-laws of the London County Council had been infringed and that these applied to the premises occupied by the railway company as well as to those for which private individuals were responsible. Mr. Curtis Bennett, after consulting the numerous Acts and sections bearing upon the matter, decided in favour of the complainants and inflicted a fine amounting, with costs, to £11 6*s*. That the matter is of importance may be gathered from an observation of the learned magistrate who said, in delivering his decision, that if the contention of the defendants was correct any insanitary place on a railway, even if it affected a whole neighbourhood, could only be dealt with by the costly process of indictment.

INSANITY AND RACIAL FECUNDITY.

AN interesting article on insanity in relation to racial fecundity is contributed by Dr. John Macpherson, Commissioner in Lunacy for Scotland, to the issue of the *Edinburgh Medical Journal* for May. The article is based mainly on a study of the vital statistics of Ireland considered in reference to the decrease of the population and the increase of insanity in that country, but the general conclusions reached are, adds Dr. Macpherson, applicable also to England and Scotland. The increase of insanity in Ireland during the past half-century is undoubted. The proportion of lunatics and idiots under the official cognisance of the Inspectors in Lunacy in Ireland in 1851 was 1 to 657 of the population, in 1861 it was 1 to 411, and in 1871 it was 1 to 328. Since then the proportion of the insane to the rest of the population has continued steadily to rise, the figures being 1 to 281 in 1881, 1 to 222 in 1891, and 1 to 178 in 1901. The actual numbers of all lunatic and idiots under official cognisance in Ireland were 28,187 in 1881, 36,133 in 1891, and 44,884 in 1901, while the population for the corresponding years has been 5,174,800, 4,704,700, and 4,458,800 respectively. This steady decrease in the population is due, as Dr. Macpherson points out, to emigration. Thus, during the 20 years ending March 31st, 1901, 1,199,100 persons of both sexes emigrated from Ireland, the number of female emigrants very slightly exceeding that of the males. That with a diminishing population there should occur an absolute as well as a relative increase in the number of insane persons is, adds Dr. Macpherson, a very striking phenomenon. The depletion of the population by emigration chiefly affects its sexually efficient units—persons of both sexes between the ages of 15 and 55 years, since the vast majority of the emigrants are young adults or persons below the age of 55 years. One result of this depletion is, argues Dr. Macpherson, that the marriage-rate is lowered in the country thus depleted of its marriageable young adults. From a careful comparison of the official statistics of emigration and of marriage as regards the various counties of Ireland the broad conclusion is reached that "the prominent factor in the vital statistics of Ireland is the association of emigration with a declining marriage-rate." Dr. Macpherson then proceeds to point out that there is a correlation between "maximum fertility," or fecundity, and the "normal healthy racial type." The emigration of so many units of the latter tends to leave behind a less fertile stock, for it is the artisan and working classes which possess the maximum of fertility and which constitute the main body of emigrants. It is further shown from a study and comparison of various statistics on fertility and on the liability to disease of large communities that a high degree of fertility is, in accordance with general biological laws, accompanied by a low ratio of morbidity (liability to disease including mental disease). The depletion of the more fertile stock tends to leave behind a less fertile stock which, however, is more prone to develop insanity as it is to suffer from other diseases. Hence the increase of insanity is more rapid absolutely in Ireland than in England or in Scotland where the effects of emigration are less felt. Dr. Macpherson concludes that this general biological law does not, of course, exclude other factors in the production of insanity—factors which are as applicable to the rest of the United Kingdom as to Ireland itself.

EMBLEMS OF THE MEDICAL PROFESSION IN JAPAN.

THE June number of *Man*, a journal published under the direction of the Anthropological Institute of Great Britain and Ireland, contains an article by Mr. E. S. Hartland, F.S.A., on two Japanese *boku-to*, or emblems of the medical profession. These objects, of which photographic representations are given, were wooden swords worn by medical practitioners in Japan before the revolution of the last century which displaced so many of the old customs of the country. A man of rank was formerly entitled in Japan, as elsewhere, to wear a sword; indeed, in Japan he was entitled to wear two swords. The retainers of a Daimio or feudal lord also wore swords. The medical men's swords were generally of a somewhat fanciful description and were made in many forms; some contained lancets, others contained knives for cutting herbs, but the majority were quite plain. One of the objects now described and figured is in the shape of a large bean-pod. Its bean-like curvature approximates to that of a Japanese sword. It is 44 centimetres (17½ inches) in length and of a nearly uniform circumference of 11 centimetres or thereabouts. It is made of some fairly hard wood which takes a polish and it is carved to indicate seven seeds inside. Wrapped around it is a silken cord by which it was attached to the girdle. Together with this cord it weighs six and three-quarter ounces avoirdupois. On the side there are represented in lacquer a grasshopper and another large insect. On the other side are similarly represented a wasp, a small fly somewhat like the common house fly, and

apparently a small beetle. The other *boku-to* is more interesting. It is a rough piece of willow, 45 centimetres long and broader at the bottom than the top. Japanese characters meaning *Spider-boat* have been deeply cut upon it. At a distance of nine centimetres from the top it is pierced with a hole three and a half centimetres long which has been utilised to attach a flat cord or tape and toggle for convenience of holding it in the girdle. The cord is of a pale red colour, now a little faded. The *boku-to*, cord, and toggle weigh together under four and a half ounces avoirdupois. The two specimens now described were bought at Atami in Japan a few months ago.

"OPTICIANS" AND SPECTACLE PRESCRIBING.

WE have received two long letters from Mr. J. Aitchison and Mr. L. Laurance as rejoinders to our leading article upon their former communications which appeared in THE LANCET of June 6th, p. 1617. We thought it fair and courteous to give these gentlemen a hearing on that occasion, but we see no reason for permitting them to continue a controversy on which, in our opinion, there is nothing new to be said. The simple facts are that the eyes are organs in which mere faults of shape and alterations of function incidental to advancing life are frequently complicated by physiological defects and pathological changes of a serious character. The knowledge of the medical practitioner covers the whole range of the resulting phenomena; the knowledge of the "optician" at the very best covers only a small and comparatively unimportant portion of them. In these circumstances the claim of the "optician" to be a skilled adviser in matters appertaining to vision appears to us not only to be one which it is impossible to sustain, but one which cannot fail in a certain, and perhaps considerable, proportion of cases to entail disaster upon those who are misled by it. The action of the prescribing "optician" is precisely on all fours with that of the prescribing druggist. If it be the pleasure of the public to be deceived the public must suffer, and in the meanwhile we have discharged our duty by giving expression to the facts of the case.

THE NEW UNIVERSITY OF LONDON.

Sir Arthur W. Rücker, Principal of the University of London, in the course of his remarks on the occasion of the distribution of prizes at St. Thomas's Hospital Medical School on June 11th, observed that the growing closeness of the relations between the great medical schools and the University of London should be emphasised as far as possible. In the reorganised University of London they possessed machinery of the most extraordinary flexibility, though the actual government of the University was really very complicated because the democratic nature of its organisation rendered it necessary that an enormous number of people should be consulted. All the medical schools connected with the University of London had a share and voice in determining the way in which the subjects in which they were interested were taught. The University could single out one teacher in an institution in London and recognise him and him alone, or it might, as University College hoped it would, take over the entire control of an institution as a whole. In broad terms, the relation of the great medical schools to the University would be something like the relation that existed between the colleges of Oxford and Cambridge to those universities. They would be absolutely independent but would be represented on the governing body of the University and in that manner would help to formulate the conditions under which diplomas would be granted. One of the principal features of the University of London would be that it would become a great centre for post-graduate work. Within the last year the University had held out its hand to the graduates of other universities in a way it had never done before. The University of London had entered into the fraternity of learning and would make it as easy as possible for those people who had passed competent tests elsewhere to make such use as they pleased of the University. The new plan only came into operation on Oct. 1st last and there were already on the books of the University 206 graduates of other universities who in such a short space of time had taken advantage of the new door that had been opened to them. Of those among that number who had entered as internal students only two or three were going in for medicine and Sir Arthur Rücker wished to point out that a graduate from another university desiring to finish his medical education in the University of London derived certain advantages if he entered as an internal student. He had the privilege, provided that he produced the proper certificates, of being able to cut down his time from five years to three. In some of the great medical schools the authorities believed that they should be relieved of the burden of teaching such subjects as chemistry, physics, and physiology which could be taught at a distance from a hospital. The Senate of the University of London had approved of a plan sent up by the Faculty of Medicine for the establishment of an institution where those subjects could be taught and if the funds could be found a site could be obtained close to the University of London.

SOME INTERESTING FACTS REGARDING THE PURIFYING EFFECT ON THE AIR OF THE RECENT RAIN.

WE have often pointed out that the passage of raindrops through the air not only purifies the air but imparts a freshening effect to it, due possibly to an oxidising action and perhaps to the formation of peroxide of hydrogen. Everyone is familiar with the "clean" smell of the air after a rainstorm. According to this view the air of the county of London must have sustained a very thorough scouring during the remarkably continuous rainfall which began on Saturday, June 13th. There was very little movement in the air and an opportunity was thus afforded of collecting the water for analysis, the results of which would represent some at any rate of the impurities washed out of the air immediately over this area. The following were the results obtained with raindrops caught in the neighbourhood of the Strand on Monday, June 15th:—

	Grains per gallon.
Total solid matters	9·100
Common salt	0·800
Ammonium sulphate	0·652
Organic ammonia	0·011
Soot and suspended matters	5·000
Nitrates	None.
Nitrites	Very distinct.

The amount of ammonia in the form of sulphate is remarkable and, of course, its chief origin is the combustion of coal. The nitrites with traces of ammonia are due to electrical discharge in the atmosphere. These results when worked out with the total rainfall give some remarkable figures. Taking the rainfall as 3·8 inches in five days (though a higher figure than that has been returned by some observers) we arrive at the calculation, based on each inch representing 22,622 gallons of water falling upon one acre and the London county acreage as 74,839, that no less than 6,437,229,860 gallons of water were poured over this area. And according to the above results of the analysis of the rain-water this enormous volume represents the washing out of no less than 3738 tons of solid impurities, of which 330 tons consisted of common salt, 267 tons of sulphate of ammonia, and 2000 tons of soot and suspended matters. Regarding the combustion of

one ton of coal to produce 20 pounds of ammonium sulphate (a very fair average) the quantity of coal represented by the ammonium sulphate washed out by the storm would be 29,904 tons. It need hardly be added that the purification is not only, as is here shown, mechanical, physical, and chemical, but bacteriological also.

THE DISTRIBUTION OF PLAGUE.

As regards Hong-Kong, a telegram from the Governor received at the Colonial Office on June 11th states that for the week ending June 6th there were 136 cases of plague, of which 4 occurred in Europeans. During the same period there were 94 deaths from the disease. As regards the Mauritius, a telegram from the Governor received at the Colonial Office on June 12th states that for the week ending June 11th there were 2 fatal cases of plague.

CHILDREN UNDER THE POOR-LAW.

DURING the course of a discussion on a vote for the Local Government Board which took place in Committee of Supply on June 11th several Members of the House of Commons expressed their views as to the best manner of dealing with pauper children. The general effect was the familiar one of darkening counsel and Mr. T. W. Russell's conclusion that the problem could only be settled by using all the methods—schools of moderate size, village communities, boarding out, and scattered homes—may be taken as summing up all that the debate had of value. As to the desirability of getting the children out of the workhouse there is no dispute; it is chiefly in regard to the relative merits of boarding out and of erecting schools that differences of opinion arise. For boarding out there is much to be said. Since the children are scattered there is little risk of their being involved in epidemics, especially of ophthalmia, such as are common in the schools. School life is wearisome, because as the children have no other homes there are not for them those breaks in the monotony which holidays supply. Moreover, the conditions are so different from those of ordinary life that the children leave the institutions with little conception of how to spend to the best advantage their limited earnings and, in the case of girls, without any aptitude for domestic service, which is practically the only opening for them. In these respects the boarding-out system is much more satisfactory and there is the further consideration that on leaving a home the child is usually able to maintain friendly relations with the foster-parents and has, therefore, a place of resort in emergencies, while it is possible for anyone who has come to be interested in the child's welfare to exercise some degree of control over him or her for years afterwards. One of the most successful centres for boarding out has been that of Calverton (Bucks) authorised in 1871. Here the Rev. W. P. Trevelyan has devoted himself to the care of the children with the result that of 92 boys and 112 girls who have passed through his hands during 31 years only five have been lost sight of, while the great majority have been converted into useful members of society. The schools, however, have their value. Experience has shown the difficulty of properly supervising the children boarded out and in the case of those who are mentally deficient and consequently troublesome several instances of cruel treatment are recorded. Again, boarding out is hardly practicable except with orphan or deserted children owing to the risk of interference from relatives. On June 12th and 13th, at the Church House, Westminster, representatives of the various London Poor-law schools gave a series of gymnastic displays arranged by two of the organisers of the London School Board. The children seemed to be happy and healthy and their dress and bearing reflected credit upon those in charge of them. On the first day Mr. Grant Lawson presided and quoted certain figures to show that the schools were doing good work. He mentioned that of 3187 girls traced only 262 were reported by their mistresses to be unfit for their duties, while of 1275 boys only 43 had been described as unsatisfactory. The position is therefore not one of rivalry between two systems and the matter at issue is merely the selection of suitable cases to be dealt with under each.

THE Workhouse Nursing Association will hold a conference at 10, Great George-street, Westminster, London, S.W., on Monday, June 29th, at 3 P.M., to discuss the report of the Departmental Committee on Nursing appointed by the President of the Local Government Board. The Right Hon. J. G. Talbot, M.P., will preside.

THE Cavendish Lecture of the West London Medico-Chirurgical Society will be delivered on Friday, June 26th, in the town hall, Hammersmith, at 8.30 P.M., by Professor T. Clifford Allbutt, the subject being *Disease* of the Ascending Aorta, and not Atheroma as previously announced.

THE autumn congress of the Sanitary Institute will be held at Bradford from July 7th to 11th inclusive. Information can be obtained from the secretary, Mr. E. White Wallis, the Sanitary Institute, Margaret-street, London, W.

VISIT OF THE KING AND QUEEN TO THE LONDON HOSPITAL.

HIS MAJESTY THE KING, accompanied by Her Majesty Queen Alexandra, visited the London Hospital on June 11th on the occasion of the opening of the new out-patients' department by the King. Their Majesties were received at the vestibule of the building by the President of the hospital, the Duke of Cambridge; the chairman of the hospital, the Hon. Sydney Holland; the senior physician, Dr. Stephen Mackenzie; the senior surgeon, Mr. C. W. Mansell Moullin; and Sir Frederick Treves, consulting surgeon. Their Majesties were then conducted to the reception room where they were presented with an address from the mayor, aldermen, and councillors of the borough of Stepney, and this having been graciously accepted the King and Queen proceeded to the new waiting-hall for the out-patients where there were assembled over 1000 spectators. On the entrance of the Royal visitors a voice like that of Stentor called upon those present for cheers for their Majesties, which was heartily responded to. After the King and Queen had been conducted to a raised and decorated platform the first verse of the National Anthem was sung and then prayers were offered by the Bishop of London and the company sang the hymn, "O God, our help in ages past." The Duke of Cambridge, attended by Colonel FitzGeorge, then welcomed their Majesties to the hospital. Then the Hon. S. Holland, accompanied by Mr. J. H. Buxton (treasurer), advanced and presented the address of the committee of management which was read by Mr. Holland. Dr. Stephen Mackenzie, accompanied by his colleagues, Sir Frederick Treves and Mr. Mansell Moullin, next came forward and presented the following address which was read by Dr. Mackenzie:—

May it please Your Majesty,—Sir Frederick Treves, representing the consulting staff, Mr. Mansell Moullin as senior surgeon, and I as senior physician, speaking on behalf of the medical and surgical staff of this hospital, venture most respectfully to endorse all that has been said by our chairman and to assure Your Majesty that having a building like this, graciously opened by Your Majesty and Her Majesty the Queen to-day, will be of great advantage to the patients and to those of us who have to work here. The presence of Your Majesty and of our gracious Queen will be an encouragement to us to continue to devote our services to the cure of disease and the relief of suffering of those who seek advice in this out-patient hospital.

His Majesty then received his reply from Mr. Akers-Douglas, M.P., and read it in a clear voice so that every word was heard by those present. He referred to the satisfaction of the Queen that the Finsen light cure for lupus had

been introduced into this country. He thanked the anonymous donor for the £25,000 towards the cost of the new building. His Majesty then said that before declaring the building open he wished to record his deep feeling of gratitude to the London Hospital which at the time of his severe illness provided him "with so distinguished a surgeon as Sir Frederick Treves, with an anæsthetist in Dr. Hewitt, and with two such nurses, Nurse Haines and Nurse Tarr, whose unceasing attention" he could not sufficiently praise.

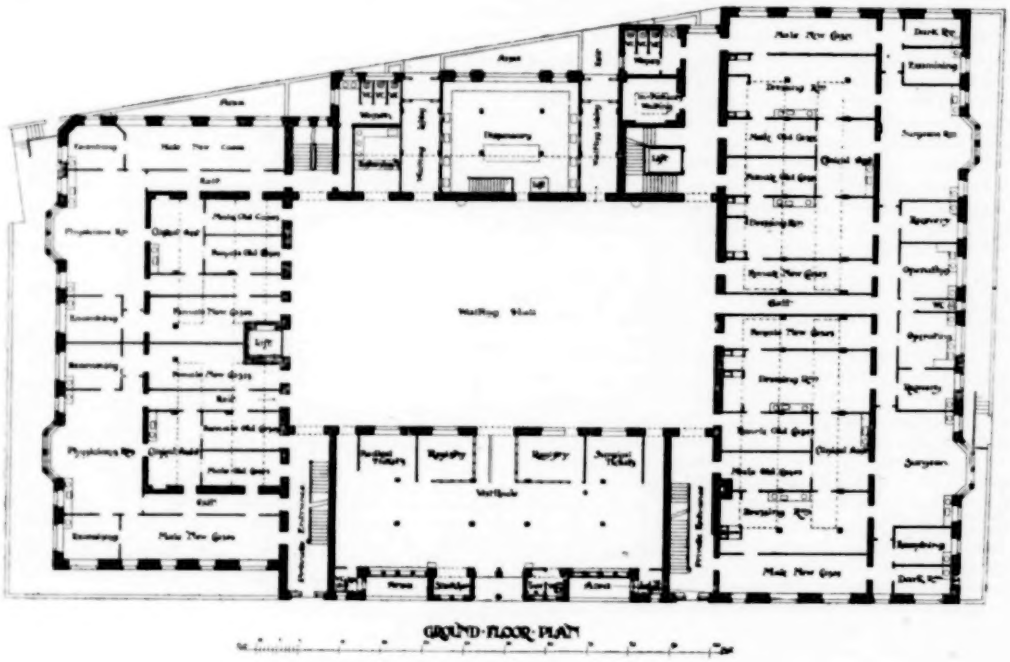
The King and Queen then proceeded on a tour of inspection through the x-ray, the electro-therapeutic, the lupus, the ophthalmic, and the aural departments. In the course of their progress the Queen pinned badges upon the breasts of 15 nurses who had proceeded to the war in South Africa from the London Hospital. During this ceremony Her Majesty said that she was confident when she sent the nurses out to the war that they would do honour to the training they had received from Miss Lückes at the hospital. In the x-ray department their Majesties spent some time and after they had had their hands radiographed the apartment was darkened and Dr. R. Morton exhibited an atom of radium which sent its rays through several penny-pieces. In the department for the treatment of lupus by the Finsen light the Queen went through the ceremony of declaring the rooms open and hoped that all the patients who left would be cured and would "give a blessing to her great countryman, Professor Finsen, who through hard work and perseverance had made that wonderful discovery." Much attention was paid by their Majesties to the case of a patient who had travelled from Turkey and after a year's treatment was nearly cured. In the ophthalmic department a patient with colour-blindness attracted the notice of the King and Queen and their Majesties were shown cases of cataract. In the aural department the Royal visitors were shown three girls, triplets, who were born deaf and dumb but whose speech and hearing had been restored to them. Some little time was spent in this part of the tour of inspection and their Majesties did not proceed on their journey until the method of examining the tympanum had been demonstrated to them and they had themselves looked down an aural speculum. Their Majesties then returned to the vestibule, passing through the operating theatres on their way, where a Crimean veteran who was awaiting surgical treatment was recognised by one of the King's suite and the Royal party delayed their departure to say a few kindly words to the sufferer. The King and Queen then left the hospital amid loud cheers and proceeded on their way to the Mansion House to take tea with the Lord Mayor and Lady Mayoress.

We append a few particulars of the new out-patients' department.

The building is entered from Oxford-street through a large vestibule, capable of seating 200 patients, in which are the registration and ticket offices at which new patients are registered and old cases receive their tickets. In the centre of the ground floor is a spacious waiting hall having a seating accommodation for 1000 persons. At the east end of the building there are two complete suites of rooms forming the surgical department. Each suite consists of a surgeon's room, clinical assistant's room, an operating room with a recovery room adjoining, two examining rooms, and in both male and female sides there are waiting rooms for old and new cases with separate surgical dressing rooms. At the west end is situated the medical department. This has also two suites of rooms and each consists of physician's room, clinical assistant's room, two examining rooms, and waiting rooms for both old and new cases for each sex. A refreshment bar is attached to the waiting hall for the sale to the patients of light refreshments at nominal prices. Drinking fountains are provided both in waiting hall and vestibule.

The general arrangement of the plan of the building insures that the patients after entering at Oxford-street are sorted and then proceed through the department in which their case is dealt with, and after obtaining their medicine leave by the exits into Green-street without crossing the progress of other patients. This arrangement naturally facilitates the management of the great numbers which have to be dealt with by the officials. There are two private entrances from the street for the use of the staff and the officials. This out-patients' department is connected with the west wing of the hospital by means of a subway which is constructed under Turner-street. On the first floor are situated the aural, dental, obstetric and massage departments, each of which is complete in itself, having the necessary consulting, operating, and waiting rooms. The second floor is devoted to the ophthalmic, photographic, and electrical departments. The lupus department is also on this floor and contains the Finsen lamp which Her Majesty presented to the hospital together with several other lamps. There are separate rooms for the surgical dressing of wounds, medical officers, and nurses. The motor-generators and other apparatus for the transforming of the electric current to supply this department are situated in a room on the roof above. The basement contains a large laboratory department, fully equipped for the manufacture of medicine, pills, lozenges, and soda-water, and has large stores for drugs, dressings, and other necessaries for medical and surgical treatment. The bath department consists of medicated and Turkish baths with the necessary dressing and waiting rooms, and is also in the basement together with the boilers, isolation rooms and accommodation for students, dispensers, porters, and other officials

The whole building is of fire-proof construction and the floors



Ground floor plan of new out-patient buildings at the London Hospital.

throughout are finished with mosaic, and where necessary the walls are glazed with either glazed brick or opalite; the remainder are finished with sirapite plaster. The whole of the rooms throughout the building are fitted with sinks, lavatories, and other fittings as required for the various purposes. The whole is fitted with electric light and electrical appliances. The internal and external areas are faced with white glazed bricks. The external elevations are of plain utilitarian character, being faced with red brick and artificial stone dressings. The large waiting hall and principal rooms are ventilated by a system of inlet and forced outlet ventilation. The total cost of the building is £80,000, of which sum £25,000 were given by a friend of the hospital. The balance of £55,000 still remains to be collected. The buildings have been carried out in accordance with instructions given by the chairman and house committee of the hospital, many months having been taken up in elaborating the scheme in consultation with the medical and surgical staff. The whole has been erected from the designs and under the superintendence of Mr. Rowland Plumbe, F.R.I.B.A., who was presented to His Majesty on the opening day; Mr. Henry J. Wagg acted as consulting electrician, Mr. William Shepherd being the builder and Mr. G. T. Murton clerk of the works.

THE ANNUAL DINNER OF THE INDIAN MEDICAL SERVICE.

THIS dinner took place at the Café Monico on June 11th, Surgeon-General Sir JOSEPH FAYRER, Bart., K.C.S.I., F.R.S., occupying the chair, in the absence of Surgeon-General Sir Annesley De Renzy, K.C.B., who through domestic affliction was prevented from presiding.

After the usual toasts had been given from the chair and had been duly honoured Sir JOSEPH FAYRER proposed "The Indian Medical Service." He observed that on a previous occasion he had given a brief *résumé* of the work of some of the most distinguished medical officers belonging to the service, men whose names are and ever will be associated with its greatness as exemplars of all that has raised it to its present position. He thought that they had good reason for maintaining confidence in the prospects of the service and for feeling assured that the spirit of scientific research was as active and vigorous as ever. He coupled with the toast the names of Sir William Hooper, K.C.S.I., and Surgeon-General A. Scott Reid.

Sir WILLIAM HOOPER having briefly replied,

Surgeon-General REID, after some humorous remarks, said he wished to speak on certain causes of dissatisfaction which existed in the Indian Medical Service and he would only refer to those which had been in operation since he entered the service, that is to say, during the last 31 years. He would first take up those which principally affected the military side. The first source of discontent was, he thought, the amalgamation, in 1880, of the military medical administration. He did not deny that this change might have been inevitable and to the advantage of the State, but it certainly was not popular with the Indian Medical Service. The immediate effect of the change was, of course, to diminish the number of administrative appointments and to throw back the average length of service for promotion to that grade by at least three years, thus practically cutting off all men who entered the department after the age of 25 years from any hope of attaining such an altitude. But it did more than that—it threw all medical officers in military employ out of touch with the head of their service who ceased to have more personal or official relations with them than the Mad Mullah of Somaliland. It was true that the order effecting the measure did not positively exclude the Indian Medical Service from the highest appointment, but Surgeon-General Reid thought he would be a bold and over-sanguine Indian medical officer who hoped ever to become Principal Medical Officer of His Majesty's forces in India. The blow was softened to some extent by conferring on sanitary commissioners of provinces the pay and status of administrative officers, but this privilege was in time withdrawn and in its turn partly compensated by the grant of four extra £100 retiring pensions, a concession which had, however, for some years been abolished for those entering the service. Surgeon-General Reid added that having said so much he must guard himself against the suspicion of any unfriendly feelings towards their sister service. He had many friends in it and his three staff officers belonged to the Royal Army Medical Corps. He could not be served by better. The matter was a purely impersonal one. A further cause of dissatisfaction was the want of suitable appointments for senior medical officers. As far as he could see the introduction of the station hospital system was the only remedy, but when he said this he freely admitted that if put to the vote the majority of officers in the service would go against it—and why? Simply because the majority were young. The introduction of the station hospital system would, in his opinion, be greatly to the advantage of the service and would undoubtedly establish a considerable asset of economy and efficiency in the accounts of the State. A cause of disappointment among young medical officers of the Indian Medical Service was the backward condition of hospitals for native troops. There had been some improvement since he entered the service but not in keeping with the advance in civil hospitals. Their equipment was meagre and the resources for treating disease were very crude. Of skilled nursing there was none and the range of dieting was very limited. Finally, as regarded the military side, he referred to the frequent transfers among junior officers. This was a very acute evil and he supposed could only be remedied by increase of establishment. He knew of several who for the first year or two had had as many moves as months and who during that period had had no opportunity of studying for, or passing in, the lower standard examination. This was hard on them. They were put to endless expense and for the time remained ineligible for charge pay. In his opinion an officer of the Indian Medical Service on arrival should be left undisturbed at the headquarters of his district until he had had a fair opportunity—say, for six months—of qualifying in the vernacular and he should draw the pay of any charge in which, owing to the exigencies of the service, he might be placed during that period. Surgeon-General Reid said he would turn next to the civil side. Although the Indian Medical Service was considered to be primarily a military one and the services of its members were only lent to the civil department, there was no doubt that in former times at least employment in the latter formed the main attraction and object of ambition to candidates. This factor was, however, he feared, not such a powerful one now, for during his tour as administrative medical officer of the Central Provinces several civil surgeons there, and some of them permanent, returned to military employ of their own accord, while since going to the Punjab command as principal medical officer about the same number who had registered their names for civil employment refused the chance when it was offered to them. He presumed that they considered that any slight advantage they might gain with regard to pay would be more than counterbalanced by having to serve in small and remote stations with little prospect of bettering themselves. Another cause—but here he feared he was skating on thin ice—which had rendered civil employment less popular lay in the restrictions which the Government had been pleased to place on the acceptance of fees for professional services rendered to chiefs, native noblemen, and men of position. From the days of Clive, when the channels for the augmentation of official incomes were closed to other Government servants, whose pay was, however, raised to compensate for the deprivation, this concession had been continued to the Medical Service unrestrictedly and they felt proud of the trust reposed in them. It was looked upon as putting them much on a par with civilians as regards emoluments. As far as he knew the privilege had never been abused. Finally, viewing the service as a whole he considered that the pay throughout and some of the positions required recasting if they were to retain the class of men who formerly entered its ranks. To begin at the top, he was of opinion that the Director-General should have the rank (as in the Royal Army Medical Corps) and the pay of a lieutenant-general; also that he should be a secretary to the Government of India in the Medical Department and a Member of Council. It seemed rather incongruous that the head of an important and Imperial department should be obliged to submit his proposals through, and subject them to the criticism of, men of perhaps two-thirds of his length of service and not that proportion of special knowledge of the subject that was being dealt with. His pay at present was only that of a second-class commissioner of a division and their late Director-General, Robert Harvey, than whom the Government of India never had a more loyal servant, or the department a truer friend, had told him that but for his private income he could not properly have supported the position. Surgeon-General Reid conceived that the head of their service should be able to hold his own socially among others in analogous appointments and, above all, that he should be enabled to receive and to entertain all the members of his own service

who called on him. In this way—he was thinking more of the young men—the Director-General would have a greater opportunity than through other channels of forming their acquaintance, of gaining their confidence, of gauging their characters, and of encouraging and stimulating them in their careers. Similarly, with regard to inspector-generals of civil hospitals, they too ought to be secretaries and members of the provincial council. Surgeon-General Reid concluded his speech by referring to the paucity of honours and rewards given in recognition of distinguished but purely professional work.

The toast of "The Visitors" was proposed by Lieutenant-Colonel A. CROMBIE, C.B., and responded to by Sir WILLIAM S. CHURCH.

The evening concluded with an acknowledgment of the services of Lieutenant-Colonel P. J. Freyer who acted as secretary of the dinner and who, in acknowledging the compliment, referred to their loss by death of Surgeon-General W. R. Rice, and the absence of Dr. W. S. Playfair who presided on the last occasion.

The following members were present:—

Surgeon-Generals: G. Bainbridge, W. W. Beatson, Sir J. Fayrer, Bart., K.C.S.I., F.R.S., Sir W. R. Hooper, K.C.S.I., A. Scott Reid, C. Sibthorpe, C.B., and P. W. Sutherland.

Colonels: G. H. Banks, W. E. Cates, H. Cayley, C.M.G., D. Hughes, B. Williamson, and W. S. G. Wynne.

Lieutenant-Colonels: M. L. Bartholomeusz, G. H. Bull, A. Crombie, C.B., H. H. Dimmock, J. Duke, A. Duncan, P. J. Freyer, G. S. Griffiths, P. de H. Haig, W. H. Henderson, J. Lewtas, J. B. Lyon, C.I.E., D. P. MacDonald, D. Ff. Mullen, J. O'Brien, J. Parker, G. S. Sutherland, W. H. Thornhill, J. F. Tuohy, A. H. Williams, and E. W. Young.

Majors: E. H. Brown, W. J. Buchanan, W. S. Caldwell, P. Carr-White, B. B. Grayfoot, A. G. Hendley, H. Hendley, J. G. Hojel, J. Jackson, M. A. Ker, C. H. L. Meyer, L. Rogers, and B. J. Singh.

Captains: H. Boulton, S. H. Burnett, A. W. F. King, W. Murphy, J. Penny, A. E. Hayward Pinch, E. R. Rost, and W. B. Turnbull.

The guests were: Sir William S. Church, Bart., K.C.B., President of the Royal College of Physicians of London; Sir James Dick, K.C.B., R.N.; Surgeon-General Sir William Taylor, K.C.B., Director-General A.M.D.; Professor T. Clifford Allbutt, F.R.S.; Surgeon-General T. Walsh, A.M.D.; Mr. A. Willett, President of the Royal Medical and Chirurgical Society; Mr. Howard Marsh; Professor R. C. Leith; Dr. Dawson Williams; and Mr. Thomas Wakley, jun.

ARMY MEDICAL DEPARTMENT REPORT FOR 1901.

CONCLUDING NOTICE.[1]

IN turning over the leaves of a volume consisting altogether of 427 closely printed pages of text and tables it is impossible to do more than to select some of the more salient points for observation and to allude briefly to a few subjects which present themselves for notice. Colonel W. J. Charlton, R.A.M.C., the principal medical officer at Netley, states that the whole of the hospital drainage system was undergoing reconstruction. The flushing of the water-closets is defective, due to the action of the chlorinated water of the Hermite system. Although a useful agent for cleansing purposes its action on the metal fittings of the water-closets is destructive and may probably necessitate the provision of new fixtures. No over-crowding occurred during the year. Extra accommodation was provided in 34 Doecker huts, each having a cubic space of 8298 cubic feet and accommodation for 10 men. The total number of invalids from abroad amounted to 6132, of whom 2851 were invalids from South Africa and 3281 from other stations abroad. Of the latter 29 died, 112 were discharged to duty, and 576 were invalided from the service. Of the South African invalids, 60 died during the year, but the full statistics of these invalids are reserved for inclusion in the campaign records.

The Principal Medical Officer, Aldershot (Colonel J. L. Notter, R.A.M.C.), remarks with reference to the establishment of systematic ophthalmic work how very important it is in these days of long ranges and modern trajectory that this should form a special branch of hospital duty, the systematic examination of the eye and the selection of lenses "when required" being more than ever necessary in the army.

At Gibraltar it is reported that considerable progress is being made with the new military hospital which is being erected there. The building is much required and must, we presume, be nearly, if not quite, completed by now (1903).

Among the sanitary changes at Bermuda it is noted that where the dry-earth system of latrines has been replaced by a water-carriage system the health of the troops has improved. As we have said in previous notices of these reports Bermuda offers, in our opinion, many facilities for carrying out an effective sewerage system and of thereby lessening, if not altogether abolishing, its liability to outbreaks of enteric fever in the future.

Passing on to the section dealing with the health of the European army serving in India we find that the average strength of these troops was much less in 1901 than it was during the preceding ten years. This was owing to the non-replacement of the troops sent to South Africa in 1899. The following table shows the admission, death, invaliding, and constantly sick ratios amongst the troops during the year 1901.

Average strength.	Ratios per 1000 of strength.				
	Admissions.	Deaths.	Invalids sent home.	Invalids finally discharged.	Constantly sick.
60,838	1104·3	13·12	39·28	8·60	66·90

The health of the troops was exceptionally good, the admission ratio was lower than that for any of the preceding 20 years, and not since 1883 have the death and constantly sick rates been less.

Enteric fever showed a decrease in 1901 of 10·8 in the admission ratio and of 2·95 in the death-rate as compared with the decennial average rates. The disease caused 26·82 per cent. of the deaths from all causes in the command in 1901 as compared with 32·65 per cent. in 1900. The satisfactory decrease in the prevalence and mortality of this fever which took place in 1899 and 1900 was maintained in 1901. The admission rate had not been so low since 1887 and the death-rate was less than it has been in any year since 1884. Whether this improvement will be maintained when the ordinary system of relief has become thoroughly re-established remains to be seen. It is in the meanwhile noteworthy that although the admission rate amongst the men in their first year of service in India has remained about the same there has been a decided decrease amongst the men in their second year of service, and, indeed, all the different age periods. This would indicate that some other causes besides age and acclimatisation or mere survival of the fittest must have been at work. In the case of officers we find that the admission ratio for enteric fever in 1901 was 17·8 per 1000, against 21·9 in the previous year, and as compared with an admission ratio of 12·8 per 1000 amongst the warrant officers, non-commissioned officers and men during the year under report. The percentage of mortality to attack was 28·12, as compared with 23·07 in 1900, and with 26·03 amongst the warrant officers, non-commissioned officers, and men during 1901. The cases were distributed over 20 stations.

Under the heading of surgical operations we find that the total number of these recorded among the British troops serving in India for the year was 687 and of deaths following operation 78. Of the 143 operations on the abdomen it is noted that 98 were for abscess of the liver.

It seems worth while mentioning that in the report on Egypt and Cyprus it is noted that during the year the open-air treatment of tuberculous disease was introduced at the station hospital, Cairo. The Egyptian climate and the fine situation of the citadel would naturally lend themselves to the purpose and the medical officer in charge reports highly of the favourable results that have been obtained and in many of the cases of the relatively rapid relief and improvement that have followed on the adoption of continuous open-air life and treatment.

[1] The previous notice was published in THE LANCET of June 6th, 1903, p. 1609.

The first paper in the appendix is Major R. H. Firth's Report on the Progress of Hygiene for the year 1901-02, and to this we would call particular attention, because it strikes us as a really useful and interesting *précis* of all that has been known and done up to date, accompanied by a running commentary from the pen of the Professor of Military Hygiene at Netley which adds considerably to its value. It would simply be tedious to enumerate all the subjects passed in review by Major Firth. The paper should be read *in extenso*. Those portions of it dealing with scarlet fever, the influence of hospital isolation, and the bacteriology of that disease, the remarks regarding the recent recrudescence of small-pox and the bacteriology and efficacy of vaccine, and more especially those portions of the report dealing with the enteric fever problem and the recent advances made in our knowledge regarding the transmission and prevention of yellow fever, will well repay perusal. The report on the work done in the surgical division of the Royal Victoria Hospital, Netley, in the year 1901-02, by the professor and assistant professor of military surgery will be referred to with interest. Considerably more than 400 operations have been performed during the year, which is a great increase over the numbers of any previous year. The increase is due almost entirely to cases of gunshot wounds from South Africa (the report is illustrated by some excellent stereoscopic skiagraphs) and to operations for the radical cure of hernia. With regard to South Africa, we may, however, very well await the anticipated appearance of an official report of the Medical and Surgical History of the War. We notice that 13 cases of abscess of the liver were operated on during the year; of these only four recovered and nine died. One of these patients was moribund on arrival at Netley; he was operated on and died on the day of arrival. Of the cases, five gave a definite history of dysentery, in four no cause could be ascribed, in two the abscess followed enteric fever, in one debility, and in one Mediterranean fever. In five of the fatal cases the relatives would not allow a post-mortem examination; details are given of the remaining four.

The report on the Medical History of the Campaign, China Field Force, 1900-01, which concludes the papers in the appendix, is mainly of interest to military medical officers.

THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

AN ordinary meeting of the Council was held on June 11th, the President, Sir HENRY G. HOWSE, being in the chair.

Diplomas of Fellowship were issued to 30 successful candidates.

A recommendation from the Board of Examiners in Dental Surgery was adopted. It was to the effect that candidates for the Licence in Dental Surgery should be required, when presenting themselves for examination in mechanical dentistry, to provide themselves with the following instruments, hitherto provided by the College: wax spatula (double-ended), sculptors, gouge and handle, vulcanite files, gold files, pin-roughing and bending pliers, snipe-nose pliers, cutting nippers, broaches and handles, fret saw, one Melotte's moldine outfit, one Bunsen burner (laboratory), fine saws, special chasers, blowpipe for mouth (12 in.), solder tweezers, crown holder, curved shears, N.P. collar pliers, plain pin nippers, riveting hammer, and dividers (4½ in.). The following will be supplied by the hospital at which the candidates are examined—viz.: hammers for striking up plates, horn mallets, and ordinary casting materials and apparatus.

The following examiners were appointed:—

Elementary Biology.—H. B. Lyle, W. G. Ridewood, T. G. Stevens, and H. W. Marett Tims.

Anatomy (Conjoint Examining Board).—C. Addison, Arthur Keith, A. Thomson, and H. J. Waring.

Physiology (Conjoint Examining Board).—T. G. Brodie, G. A. Buckmaster, and W. H. Thompson.

Anatomy (Fellowship).—C. Addison, L. A. Dunn, A. Keith, and A. H. Young.

Physiology (Fellowship).—De Burgh Birch, L. E. Hill, E. W. Reid, and E. H. Starling.

Midwifery (Conjoint Examining Board).—G. F. Blacker, W. Duncan, A. H. N. Lewers, and J. H. Targett.

Public Health.—Part I., A. G. R. Foulerton; Part II., S. A. M. Copeman.

Mr. W. F. Haslam of Birmingham was elected a member of the Court of Examiners.

The President reported that a doctor's signboard, dated 1623, formerly the property of Mr. Manley Sims, had been purchased by the College.

The President also reported that he had purchased, on behalf of the College, a portrait by George Richmond, R.A., of the late Mr. Henry Hancock, President of the College in 1872.

A letter was read from Mr. D. B. Balding, F.R.C.S., of Royston, presenting to the College: (1) a small Prentice bleeding bowl bearing the date 1671, and (2) a hydrocele trocar (figured in vol. i., p. 420, third edition, of Benjamin Bell's Surgery, Edinburgh, 1787). The best thanks of the Council were given to Mr. Balding for his interesting gifts.

A letter was read from Mr. Thomas Bryant reporting the proceedings of the General Medical Council at its late session. The best thanks of the Council were given to Mr. Bryant for his services as the representative of the College on the General Medical Council.

The consideration of Mr. A. W. MAYO ROBSON'S motion—

> That a committee be appointed to consider the anomalies of the coroner's court in its relation to the medical profession,

was postponed.

A vote of thanks was unanimously given to Mr. Alfred Willett and Sir Frederick Treves, Bart., K.C.V.O., for their services to the College while members of the Council.

Looking Back.

FROM

THE LANCET, *SATURDAY*, JUNE 18, 1825.

LECTURES ON THE PRINCIPLES AND PRACTICE OF PHYSIC,

BY DR. ARMSTRONG.

Theatre of Anatomy, Webb Street.

LECTURE 29.[1]

If you were called to a patient affected with the simple form of scarlet fever, what would you do? The best thing at first, when the skin has become uniformly hot, is to wash the patient all over with tepid water; procure a large shallow tub, a common washing tub, and let the patient sit on a three-legged stool in the middle of it, the feet being covered by warm water; sponge the skin with warm water, then wipe it perfectly dry, and put him to bed between clean sheets. Give about two grains of calomel with a little rhubarb, and a dose of cold drawn castor oil a few hours afterwards. Let the diet be then arrowroot, and the drink cold water; pursue this plan in a cool airy apartment for three or four days, and the patient will generally be convalescent. Be careful not to expose him to cold then, as he might become dropsical. Our systematic writers have made dropsy almost a necessary consequence of scarlatina, but this is not the fact. I have seen, within the last six years, at least four hundred cases of scarlet fever, and I have only seen a single case in which dropsy occurred, which was owing to my directions being disregarded. The patient crammed himself with new bread, and cold or cramming are its usual causes. Dropsy, so far as I have observed subsequent to scarlet fever, arises often from inattention on the part of the patient, and occasionally from ignorance on the part of the practitioner.

The treatment of the inflammatory scarlet fever must be regulated according to its form. If you are called to a patient in whom the fever is ardently developed, and the throat much inflamed, apply eight or ten leeches to the part; sponge the surface of the body in the way I have mentioned, or pour about two gallons of tepid water at once over the whole surface. In the next place, give a brisk aperient, as a combination of calomel and rhubarb or jalap, followed up by an infusion of senna with sulphate of magnesia. Use a gargle also composed of diluted sulphuric acid with a little syrup; keep the patient at rest in the recumbent posture, and keep him very cool, and on a very spare diet. This is the plan that I usually adopt.

[1] Only a part has been transcribed.

METROPOLITAN HOSPITAL SUNDAY FUND.

THE wet weather last Sunday has considerably reduced the sums which might have been collected and many of the clergy have written to us to this effect. In a large number of churches it is intended on Sunday next to make an appeal to those who were absent last Sunday to add their contributions to the amount collected on that occasion. No doubt many will gladly avail themselves of this opportunity. The Lord Mayor, in a letter to the press which we publish this week, has appealed to the clergy to place the situation before their congregations to-morrow and to invite contributions to be sent to themselves or directly to his Lordship. This we are sure—gratefully sure—the majority of the clergy will do, although the increased trouble thus entailed upon them is very serious. It is too early at present to attempt to forecast what the grand total of the Fund for this year is likely to be, but the unfavourable weather has, we fear, spoilt all chance of its reaching the much-coveted and badly-needed £100,000. The following are some of the chief amounts received at the Mansion House, or notified directly to us as having been collected, on behalf of the Metropolitan Hospital Sunday Fund up to Wednesday last:—

	£	s.	d.
St. Paul's Cathedral	5250	0	0
St. Michael's, Chester-square	1405	0	0
"In Memoriam, S. L., died May 1, 1895"	500	0	0
All Saints', Ennismore-gardens	460	0	0
Theistic Church, Swallow-street	280	0	0
Emmanuel Church, Wimbledon	203	0	0
St. James's, Piccadilly	174	0	0
Christ Church, Chislehurst	162	0	0
St. Michael's, Paddington	151	0	0
St. Nicholas and St. John the Baptist, Chislehurst	137	0	0
Westminster Abbey	134	0	0
St. Augustine's, Highbury	117	0	0
Lounsford Parish Church	112	0	0
St. Mary Boltons	110	0	0
Mr. J. Morris	100	0	0
Lady Kortright	100	0	0
Mr. A. Miller	100	0	0
Mr. Richard Foster	100	0	0
St. John's Presbyterian Church, Kensington	100	0	0
Dulwich College Chapel	70	0	0
St. Mary's Parish Church, Merton	52	0	0
Crouch-hill Presbyterian Church	50	0	0
Cuddington Parish Church	44	0	0
St. Anne's, Wandsworth	39	0	0
St. Mary Magdalene, Enfield	39	0	0
Carmelite Church, Kensington	35	0	0
Chiswick Parish Church	32	0	0
Camberwell Parish Church	34	0	0
St. James's, Camberwell	32	0	0
Farm-street Church	46	0	0
Messrs. J. H. Vavasseur and Co.	52	0	0
Bromley, Kent, Wesleyan Chapel	32	0	0
Christ Church, Newgate-street	51	0	0
St. James's, Norlands	40	0	0
St. Gabriel's, Warwick-square	56	0	0
St. Andrew's, Watford	58	0	0
St. Mary's, Shortlands	81	0	0
Lewisham High-road Congregational Chapel	45	0	0
Great Warley Parish Church	56	0	0
The Oratory, Brompton	65	0	0
St. George's, Bloomsbury	39	0	0
St. Matthew's, Sydenham	33	0	0
Jersey De Wend	50	0	0
Miss Druce	50	0	0
West Wickham Parish Church	46	0	0
St. Stephen's, Clapham Park	76	0	0
St. Mary's, Lewisham	58	0	0
Aldenham Parish Church	66	0	0
St. Mildred's, Lee	41	0	0
All Souls', Finchley	80	0	0
St. James's, Kidbrook	93	0	0
St. Andrew's, Leytonstone	81	0	0
St. Alfege, Greenwich, Parish Church	60	0	0
St. George's, Perry Hill	58	0	0
St. Matthew's, Sinclair-road, Kensington	51	0	0
Central-hill Baptist Chapel, Upper Norwood	83	0	0
Church of the Annunciation, Chislehurst	78	0	0
Bromley, Kent, Parish Church	76	0	0
St. Mary's, Plaistow	60	0	0
St. Andrew's, Totteridge	52	0	0
St. Luke's, Hornsey	45	0	0
St. Matthew's, Brixton	44	0	0
Ilford Parish Church and Chapel	48	0	0
St. Luke's, Hampstead	37	0	0
St. Augustine's, Queen's-gate	64	0	0
St. John's, Ealing Dean	35	0	0
Magdalen Hospital, Streatham	33	0	0
rent Church, Enfield	35	0	0

BANQUET TO SIR JOHN WILLIAMS.

SIR JOHN WILLIAMS, Bart., K.C.V.O., M.D., F.R.C.P., having decided to retire from professional work and to reside in the county of his birth, Carmarthenshire, a large number of leading members of the profession and others who occupy notable positions in Welsh circles resolved to entertain him at a banquet and this was arranged for the evening of June 12th at the Royal Hotel, Cardiff.

At the banquet, over which the Mayor of Cardiff (Alderman Thomas, J.P.) presided, amongst those present were:—Principal Griffiths and Dr. A. F. Dixon (of the University College), Sir Alfred Thomas, M.P., Dr. Edwards (the *doyen* of Cardiff practitioners), Dr. Griffiths, Mr. Ebenezer Davies (Swansea), Principal Rhys (Oxford), Judge Gwilym Williams, Mr. J. Lynn Thomas, C.B., Mr. C. Biddle (Merthyr), Mr. Evan N. Davies, J.P. (Penygraig), Mr. Ivor H. Davies (Weston-super-Mare), Dr. M. O Davies (Cardiff), Dr. Maurice G. Evans, Dr. P. Rhys Griffiths, Dr. Pritchard, Dr. A. Garrod Thomas, Dr. T. H. Morris, Dr. C. T. Vachell, Dr. W. Williams, Dr. W. Mitchell Stevens, Dr. W. Sheen, Dr. J. J. Buist, Mr. W. F. Brook (Swansea), Mr. E. Tenison Collins, Dr. Herbert Cook, Dr. F. P. S. Cresswell, Mr. H. L. Hughes (Dowlais), Dr. J. D. Jenkins (Pentre), Dr. S. Cromwell Jones (Merthyr Tydvil), Mr. S. Lloyd Jones (London), Dr. J. Howard-Jones (Newport), Dr. Cyril Lewis, Dr. Henry Lewis, Dr. E. J. Maclean, Dr. William Martin, Mr. D. Naunton Morgan (Clydach), Mr. G. Neale, J.P. (Barry), Dr. Donald R. Paterson, Dr. R. Pritchard, Dr. J. H. Rees (Penarth), Mr. J. Robinson (Cardiff), Dr. Scholberg (University College, Cardiff), Mr. T. Stevens, Dr. William Taylor (Cardiff), Dr. W. E. Thomas (Ystrad), Mr. D. J. Thomas (medical officer of health, Merthyr Tydvil), Dr. A. Garrod Thomas (Newport), Dr. Tatham Thompson, Mr. J. Llewellyn Treharne, Dr. A. H. Trowm, Dr. E. Walford, Mr. T. J. Webster, J.P., Mr. C. J. Weichert (Penygraig), Dr. William Williams (medical officer of health of Glamorganshire), Mr. J. H. Williams (Aberavon), and Mr. D. J. Williams (Llanelly).

Sir John Williams was received with great enthusiasm. The after-dinner proceedings were characterised by much animation and appreciative references to the character and record of the guest of the evening.

In returning thanks for the toast of "The Services" Colonel QUIRK, C.B., referred to the typhoid-infected blankets, responsibility for which, he said, folk had been trying to saddle upon the army, but now the medical equipment had become the object of attack in this connexion. The medical officers ought, it was contended by the critics, to have seen that these coverings were destroyed at the inception of the outbreak, but he was confident that the medical profession would be quite equal to vindicating its own cause and case.

The MAYOR then gave the toast of the evening, "Sir John Williams," and in doing so referred to the profound sentiment of affection which Sir John Williams, in spite of the strain of heavy professional responsibilities and a career of strenuous application, cherished for his native country. This was shown in the peerless collection of Welsh books and manuscripts which he had gathered together and which constituted a really great library. The place which he occupied in the confidence of illustrious circles was indicated by the notable fact that Sir John Williams had been decorated with the Victorian Order by His Majesty the King in person. He (the Mayor) hoped now Sir John Williams had returned again to Wales to live amongst them that these after days would be serene and unclouded and that Wales would be privileged to benefit again by the interest which Sir John Williams felt in the advancement of its progress and general welfare. There was one particular sphere in which Sir John Williams could be an incalculable service to them as Welsh people, and that was in relation to the medical school which it was sought to establish at Cardiff. They were very anxious that this should be the means of furthering developments of science and study in the Principality and he commended to the notice of Sir John Williams the fact that he might come from his Carmarthenshire home to Cardiff and stay in the Welsh metropolis for three hours and afterwards go home and be in time for dinner.

Sir ALFRED THOMAS, M.P., as representative of the Welsh

University College, also spoke to the toast and referred with enthusiasm to the perseverance, courage, and integrity which had been evidenced by Sir John Williams in the course of a striking career. Sir John Williams had come back to his countrymen in the zenith of his fame with a clean bill of health, sails all set, dropping anchor in the haven of his old home. It was not for him to suggest to Sir John Williams what he should do now. That would be both a delicate and a perilous task, and besides a superfluous one, for Sir John Williams knew very well how best to act. But he would join with the Mayor of Cardiff in expressing a deep desire that Sir John Williams should ally himself with the medical school of the University College which, he remarked amid much applause and laughter, he believed to be the "best college on earth."

The toast was received with prolonged cheering and musical honours, and Sir JOHN WILLIAMS, who appeared moved by the greeting which was accorded to him, rose to reply to the toast. To acknowledge such generous appreciation, he said, was difficult—almost as difficult an ordeal as that which one experienced when lecturing for the first time to that extremely wideawake class of critics, the medical students. He could only thank his friends very warmly and sincerely for their goodwill. Some while ago he had been asked by one of the newspapers which enjoyed a large circulation to give its columns some of his reminiscences. He felt that these were such as could not appear in such circumstances. And so in expressing his gratification at the sentiments which were manifested towards him he must now confine himself to his very sincere acknowledgments. But he was glad to see amongst them so many old friends, and especially glad to see Mr. Ebenezer Davies of Swansea who had given him his start in the medical profession and bestowed upon him much valued advice.

Sir John Williams resumed his seat amid renewed cheers.

Mr. EBENEZER DAVIES, Judge GWILYM WILLIAMS, and Dr. T. D. GRIFFITHS (Swansea) afterwards delivered addresses of hearty welcome to Sir John Williams on his return to the "land of his fathers"; and it was mentioned incidentally that Swansea intended to give to Sir John Williams a separate and a royal reception in a very little time.

Judge GWILYM WILLIAMS remarked that in honouring Sir John Williams the King and Queen had honoured Wales. All Welshmen were proud of a man who from his very student days right on to these meridian hours of life had ever been instinct with the inspiration of hard work and great abilities greatly applied. It was something for them to be glad that when those who professed chill scepticism as to the latent energies and capacities of Welsh people put the jeering question in a captious spirit, "Where are your Welshmen of distinction?" they were able to point to their guest of the evening as one of those who brought to the records of Wales a lifetime of service and honour.

Professor RHYS in replying to the toast of "The University of Wales" pointed out that it would be of incalculable advantage to Wales and those connected with the promotion of its educational and social interests if on questions which demanded an expert knowledge of medicine and medical matters they were able to have the counsel and assistance of so great an authority as Sir John Williams.

Sir JOHN WILLIAMS afterwards proposed "The South Wales and Monmouthshire University College" and delivered an address in which he dealt with the Celtic character. He minutely compared Wales with Scotland and predicted, in spite of the drawbacks which handicapped Welsh students, better things and more substantial results in days to come. The dawn was breaking and this was evidenced by the success of their medical school at Cardiff. Half a century had wrought an immense change in the condition of the Welsh people. He noted with satisfaction that the South Wales College differed from the other Welsh colleges in having a faculty of medicine where the future medical men of Wales would be trained. He hoped that before long the University of Wales would have powers to grant degrees in medicine.

Principal GRIFFITHS responded and explained that financially the South Wales and Monmouthshire College could not go on much longer as now, for if help was not forthcoming the fees would have to be raised. As for the medical school, he grieved that they were about to lose their valued colleague, Professor Dixon.

Professor DIXON also responded and said that considerable distinction had characterised the career of some of the students of the medical school at the Cardiff College.

Vocal and instrumental selections were given during the evening and the whole proceedings were very pleasant and successful, this result being due in a large degree to the admirable arrangements of Mr. Austin Jenkins (the registrar of the University College) and Mr. Lynn Thomas.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 9343 births and 4022 deaths were registered during the week ending June 13th. The annual rate of mortality in these towns, which had been 15·5, 14·9, and 14·3 per 1000 in the three preceding weeks, further declined to 13·9 per 1000 last week. In London the death-rate was 12·4 per 1000, while it averaged 14·6 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 4·7 in Hornsey, 5·3 in Smethwick, 5·7 in Willesden, 6·4 in Walthamstow, 8·5 in Croydon and in York, 9·0 in Tottenham, and 9·1 in Handsworth; the highest rates were 18·8 in Oldham, 19·3 in Liverpool, 19·4 in Burnley, 19·6 in West Bromwich and in Preston, 21·5 in Coventry, 22·5 in Middlesbrough, and 25·1 in Great Yarmouth. The 4022 deaths in these towns last week included 404 which were referred to the principal infectious diseases, against 461, 434, and 397 in the three preceding weeks; of these 404 deaths 124 resulted from measles, 77 from diarrhœa, 76 from whooping-cough, 56 from diphtheria, 39 from scarlet fever, 19 from "fever," and 13 from small-pox. No death from any of these diseases was registered last week in Brighton, Bournemouth, Plymouth, Devonport, Handsworth, Smethwick, Wallasey, Barrow-in-Furness, or Tynemouth; while the highest death-rates from the principal infectious diseases were recorded in Great Yarmouth, Wolverhampton, West Bromwich, Coventry, Oldham, Preston, and Middlesbrough. The greatest proportional mortality from measles occurred in Leyton, Walthamstow, Wolverhampton, Coventry, Wigan, Sheffield, and Middlesbrough; from diphtheria in Great Yarmouth and Coventry; from whooping-cough in Oldham and Middlesbrough; from "fever" in West Bromwich and Middlesbrough; and from diarrhœa in Great Yarmouth and Hanley. The mortality from scarlet fever showed no marked excess in any of the large towns. Of the 13 fatal cases of small-pox registered during the week three belonged to Liverpool and one each to Leicester, Derby, Bootle, Bolton, Manchester, Oldham, Rochdale, Halifax, Bradford, and Sunderland. The number of small-pox patients under treatment in the Metropolitan Asylums hospitals which had been 64, 60, and 72 at the end of the three preceding weeks, had declined again to 64 at the end of last week; nine new cases were admitted during the week, against 19, 10, and 24 in the three preceding weeks. The number of scarlet fever cases in these hospitals and in the London Fever Hospital on Saturday, June 13th, was 1710, against numbers increasing from 1662 to 1785 on the eight preceding Saturdays; 145 new cases were admitted during the week, against 234, 225, and 210 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 182, 186, and 171 in the three preceding weeks, further declined last week to 141 and were 59 below the number in the corresponding period of last year. The causes of 45, or 1·1 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Birmingham, Nottingham, Newcastle-on-Tyne, and in 50 other smaller towns; the largest proportions of uncertified deaths were registered in Grimsby, Liverpool, Manchester, Sheffield, and South Shields.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 17·2, 18·4, and 18·2 per 1000 in the three preceding weeks, further declined to 17·5 per 1000 during the week ending June 13th, but was 3·6 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 13·7 in Dundee and 13·8 in Paisley to 18·8 in Glasgow and 26·3 in

Greenock. The 574 deaths in these towns included 20 which were referred to whooping-cough, 20 to diarrhœa, three to measles, three to scarlet fever, two to "fever," and one to diphtheria, but not one to small-pox. In all, 49 deaths resulted from these principal infectious diseases last week, against 51, 70, and 65 in the three preceding weeks. These 49 deaths were equal to an annual rate of 1·5 per 1000, which was slightly above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 22, 28, and 25 in the three preceding weeks, further declined last week to 20, of which 10 occurred in Glasgow, four in Greenock, and three in Edinburgh. The deaths from diarrhœa, which had been 18 in each of the two preceding weeks, increased to 20 last week and included 11 in Glasgow, three in Edinburgh, and three in Aberdeen. The fatal cases of measles, which had been six, seven, and nine in the three preceding weeks, declined again last week to three. The deaths from scarlet fever, which had been six and seven in the two preceding weeks, decreased again to three last week; while the two fatal cases of "fever" corresponded with the number in the preceding week. The deaths referred to diseases of the respiratory organs in these towns, which had been 114 and 111 in the two preceding weeks, further declined last week to 75, and were 54 below the number in the corresponding period of last year. The causes of 23, or more than 4 per cent., of the deaths registered in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 22·4, 22·2, and 22·2 per 1000 in the three preceding weeks, declined again to 22·4 per 1000 during the week ending June 13th. During the past four weeks the death-rate has averaged 22·4 per 1000, the rates during the same period being 13·7 in London and 17·3 in Edinburgh. The 163 deaths of persons belonging to Dublin registered during the week under notice showed a decline of two from the number in the preceding week and included nine which were referred to the principal infectious diseases, against 11, seven, and ten in the three preceding weeks; of these five resulted from whooping-cough, two from "fever," one from small-pox, and one from scarlet fever, but not one from measles, from diphtheria, or from diarrhœa. These 19 deaths were equal to an annual rate of 1·2 per 1000, the death-rates last week from the principal infectious diseases being 1·2 in London and 1·3 in Edinburgh. The fatal cases of measles, which had been one, two, and one in the three preceding weeks, increased again last week to five. The deaths from "fever," which had been two, one, and three in the three preceding weeks, declined again to two last week. One fatal case of small-pox was registered last week, against four, none, and three in the three preceding weeks. The 163 deaths in Dublin last week included 29 of children under one year of age and 38 of persons aged upwards of 60 years; the deaths of infants slightly exceeded the number in the preceding week, while those of elderly persons showed a marked decline. Five deaths from violence and five inquest cases were recorded; and 57, or more than a third, of the deaths occurred in public institutions. The causes of ten, or more than 6 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeon A. Kidd to the *Hood*. Staff Surgeons: R. Hill to the *Victory*; H. B. Marriott to the *Tribune*; E. St. M. Nepean to the *Æolus*; W. G. Stott to the *Melampus*; and R. Miller to the *Spartan*. Surgeons: W. N. L. Cherry to the *Hood*; S. H. Woods to the *Pembroke*, additional for disposal. Civil Practitioner R. Magill to be Surgeon and Agent at Newcastle and Dundrum.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel Thomas A. Dixon retires on retired pay. Dated June 13th, 1903.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Lieutenant-Colonel G. R. T. Phillips having resigned his appointment in the Imperial Yeomanry ceases to be an officer in the Army Medical Reserve of Officers. Surgeon-Lieutenant E. Downes having resigned his appointment in the Volunteers ceases to be an officer in the Army Medical Reserve of Officers.

IMPERIAL YEOMANRY.

The undermentioned gentlemen to be Surgeon-Lieutenants:—John Leach (dated June 10th, 1903) and John Robert Kennedy (dated June 10th, 1903).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 2nd Hampshire: John Henry Frederick Way, late Captain, to be Surgeon-Lieutenant. Dated June 13th, 1903.

Submarine Miners: The Tay: John Yule Mackay to be Surgeon-Lieutenant. Dated June 13th, 1903.

Rifle: 2nd Volunteer Battalion the Royal Warwickshire Regiment: Surgeon-Lieutenant J. Orton to be Surgeon-Captain. Dated June 13th, 1903. 4th Volunteer Battalion the Cameronians (Scottish Rifles): Surgeon-Lieutenant A. F. Wilson-Gunn to be Surgeon-Captain. Dated, June 13th, 1903. 22nd Middlesex: Surgeon-Captain W. J. Harnett resigns his commission and is granted the honorary rank of Surgeon-Major, with permission to wear the uniform of the corps on retirement. Dated June 13th, 1903. 1st Cadet Battalion the King's Royal Rifle Corps: Surgeon-Lieutenant R. Roche to be Surgeon-Captain. Dated June 13th, 1903. 1st (Hallamshire) Volunteer Battalion the York and Lancaster Regiment: Surgeon-Major J. W. Martin to be Surgeon-Lieutenant-Colonel. Dated June 13th, 1903. 2nd Volunteer Battalion the Gordon Highlanders: Surgeon-Lieutenant H. G. Cowie resigns his commission. Dated June 13th, 1903.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

The Manchester Companies: Lieutenant W. L. Bentley to be Captain. Dated June 13th, 1903.

VOLUNTEER INFANTRY BRIGADE BEARER COMPANY.

Welsh: Lieutenant A. W. Sheen to be Captain. Dated June 13th, 1903.

THE MEDICAL CORPS OF THE UNITED STATES NAVY.

The Fifty-seventh Congress in its last session, states the *Maryland Medical Journal*, provided for an increase of 150 members in the Medical Corps of the Navy, 25 of whom are to be appointed each calendar year for six years. By the enactment of this law there is afforded to the young physicians of America an opportunity to take service in the navy of the United States and an assurance of the continuance of this opportunity for the next six years. The future prospects of the medical officer of the navy, both for promotion and professional opportunity, are very bright, says our American contemporary, and the plan of enlargement of the naval establishment already adopted and authorised, as well as that in contemplation, gives assurance that this outlook will grow even more promising. The Medical Corps of the United States Navy consists at the present time of the following numbers and grades. One surgeon-general with the rank of admiral (equivalent to brigadier-general in the army); 15 medical directors with the rank of captain (equivalent to colonel in the army); 15 medical inspectors with the rank of commander (equivalent to lieutenant-colonel in the army); 85 surgeons with the rank of lieutenant-commander (equivalent to major in the army); 23 passed assistant surgeons with the rank of lieutenant (equivalent to captain in the army); 56 assistant surgeons with the rank of lieutenant, junior grade (equivalent to first lieutenant in the army). There are 27 vacancies in the grade of assistant surgeon for the year 1903.

ARMY CANTEENS.

As our readers are aware, a controversy has been going on for some time on the subject of army canteens which, seeing that it affects the social comfort, health, and general well-being of the soldier, is not altogether without medical interest. By a recent order the War Office has modified its previous announcement that army canteens were to be conducted on the regimental system. It has now been wisely left to the army to manage its own canteens in its own way. Power is given to those in direct command of troops to follow the particular system which is preferred by the corps-unit and is thought likely to prove most advantageous to the soldier. So many objections have been urged by officers of experience against the working of the regimental system on its old lines and, on the other hand, there are so many

reasons in favour of the tenant system, that the War Office has been driven to adopt the wise course of leaving the matter in the hands of the local military authorities.

PARTURIUNT MONTES.

It is a very curious circumstance which cannot have escaped observation that whenever there is any unusual talk of military reform the more immediate, and sometimes the only apparent, result is some alteration or other in the officer's or soldier's dress. The ugly flat pancake cap to be seen on the heads of Guardsmen is closely followed by a question as to whether a white collar is allowable or not in uniform, and if so, the exact amount of it permitted to be visible. It can scarcely be said that these changes were necessary or desirable in a hygienic or artistic point of view.

ROYAL NAVY MEDICAL SERVICE.

We are extremely glad to notice that Staff-Surgeons E. B. Townsend and P. B. Handyside have been recently promoted to be fleet-surgeons for conspicuous professional merit. It is an official recognition of a sound principle on the part of the Admiralty authorities and we congratulate the officers in question.

Correspondence.

"Audi alteram partem."

METROPOLITAN HOSPITAL SUNDAY FUND.

To the Editors of THE LANCET.

SIRS,—The deplorable weather on "Hospital Sunday" prevented so many people from going to their places of worship that the collections on that day have been half ruined. It will be a lasting pity if when the needs of the hospitals are so especially pressing and when our generous benefactor, Mr. George Herring, is again offering to add a quarter to all the church and chapel offertories sent in, the result of the Fund this year should be so lamentably below the average.

In these circumstances I venture to appeal to the clergymen and ministers to state these facts to their congregations next Sunday and to invite those who were absent on Hospital Sunday to remit their customary contributions either to them or to me. It would, I suppose, be too much to ask that the offertory at one of the services at least should be dedicated to the Hospital Sunday Fund?

I am, Sirs, yours faithfully,
MARCUS SAMUEL, Lord Mayor.

The Mansion House, London, E.C., June 17th, 1903.

ASSOCIATION OF MIDLAND RAILWAY SURGEONS.

To the Editors of THE LANCET.

SIRS,—The first annual general meeting of the above association will be held at the Wyvern Hotel, Leicester, on Thursday, June 25th, at 3.30 P.M. As important business is to be transacted it is desirable that all the surgeons to the Midland Railway Friendly Society should make an effort to attend, and, Sirs, if you will kindly give prominence to this announcement in your valuable journal it will greatly assist by enabling those Midland railway surgeons whose names are still unknown to the association to attend the meeting or to communicate with me so that if they wish their names may be added to the existing list of members.

I am, Sirs, yours faithfully,
A. E. PAYNE,
Honorary Secretary, *pro. tem.*

2, Melbourne-street, Leicester, June 16th, 1903.

A NEW METHOD OF DETECTING PLAGUE BACILLI IN BLOOD.

To the Editors of THE LANCET.

SIRS,—The difficulty in detecting plague bacilli in the blood is so well known that we venture to bring to your notice a method which has hitherto given us very good results in all cases, both early and late. It will be found very useful to those in charge of general hospitals where it is difficult to keep out plague cases and where one is anxious to come to a diagnosis as early as possible. The blood film should be taken by Ross's method, making the film a little larger and thinner than for malaria; decolourise and stain, when plague bacilli will invariably be found. All our last cases have been diagnosed in this way and the diagnosis confirmed at the infectious hospital.

We are, Sirs, yours faithfully,
J. BELL,
Superintendent;
E. A. R. LAING,
Assistant Superintendent.

Government Civil Hospital, Hong-Kong, May 14th, 1903.

BLOOD PRESSURE.

To the Editors of THE LANCET.

SIRS,—May I ask Dr. Oliver why, in his address entitled "A Few Jottings in Physiological Medicine," he estimates blood pressure in terms of *cubic* millimetres of mercury? I thought at first that the word "cubic" must be a misprint, but as it occurs throughout the address it is apparently intentional. Pressure is measured by the height of a column of mercury (or other fluid) and not by its volume. With regard to the rise of blood pressure at high altitudes, will not this be explained by a diminution of the partial pressure of the oxygen? The pulse-rate has been found, in balloon ascents, to increase with the height up to 24,000 feet.

I am, Sirs, yours faithfully,
CHARLES POWELL WHITE.

St. Thomas's Hospital, S.E., June 16th, 1903.

THE UNRESTRICTED OUTPUT OF INFLAMMABLE COMBS.

To the Editors of THE LANCET.

SIRS,—You have, I think, several times called attention to the danger of using dressing combs prepared from xylonite or other analogues of gun-cotton. The risk appeared to me to be very trifling, but that view has been modified by the case of a young girl who was lately brought to me suffering from cellulitis of the scalp. It seems that she was in the habit of wearing a comb in her hair and one Sunday, whilst preparing her father's dinner, she held down her head in front of the fire. Suddenly the comb became ignited and burned up with a flash, setting fire to her hair. She fell on the ground in a faint, but luckily her brother had the presence of mind to wrap a coat around her head and to extinguish the flames, leaving her, however, in a state of collapse and with other effects of the accident from which she did not recover for weeks.

I understand that the original patent for making combs from xylonite has expired and that now the markets are flooded with imitations which are much more liable to ignition than the original. Surely, then, some restriction ought to be placed on their sale or at least the purchaser ought to have fair warning of the risk.

I am, Sirs, yours faithfully,
J. C. MCWALTER, M.D. Brux., D.P.H.

Dublin, June 13th, 1903.

ASEPTIC AND ANTISEPTIC SURGERY.

To the Editors of THE LANCET.

SIRS,—I have read with great interest Mr. Henderson's remarks in THE LANCET of June 13th, p. 1697, and entirely agree with him. By strictly adhering to aseptic and antiseptic methods it is quite possible for a general practitioner to undertake some of the major operations of surgery with most gratifying results. During the last three years I have performed three laparotomies for ectopic pregnancy, suppurating ovarian cyst, and a cyst of the right broad ligament, and removed a retained testis in the inguinal canal. In every case I obtained primary union, although these operations were performed at the patient's home. I also amputated two breasts for carcinoma and did a good many minor operations with good results.

In addition to the carrying out of strict asepsis and antisepsis as regards instruments, sutures, and dressings, I invariably see that the room is thoroughly disinfected and stripped of carpets, mats, dirty curtains, &c., prior to the operation. With these precautions my experience is that

almost any operation can be undertaken at a patient's home by a general practitioner.

I am, Sirs, yours faithfully,
L. C. MARTIN, M.R.C.S. Eng., L.R.C.P. Lond.

Woolston, Hants, June 14th, 1903.

THE GENERAL MEDICAL COUNCIL AND THE ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.

To the Editors of THE LANCET.

SIRS,—Your leading article in your issue of June 13th, p. 1680, on the dispute between the above bodies recalls to my mind the treatment I received at the hands of the Conjoint Board in 1897, especially as there seems to have been an entire change of policy on the part of the Board since that time in regard to the first year of study.

The General Medical Council ante-dated my registration as a medical student from 1893 to 1892 on account of my having spent that year at a university college in the study of chemistry, physics, and botany for the B.Sc. degree. Having fully carried out the requirements of the Conjoint Board as to the courses of study under the five years' curriculum I applied for admission to the final examination in 1897, but my application was refused on the ground that I had not spent the whole of the five years at a medical school and hospital and it was intimated that I should not be eligible for another twelvemonth. No such clause existed in their regulations, the period of five years being only mentioned as necessary to have elapsed since registration. This check was a serious one, inasmuch as my object in entering for the examination was to qualify for a house appointment at my hospital, without which candidates were not "signed up" for the London M.B. examination. I had therefore practically no option but to spend 15 guineas on the final examination of the Apothecaries' Society who admitted me without demur.

In view of the present policy of the Royal Colleges to accept as the first year of the curriculum the last year spent at almost any school where instruction in physics and biology is given (and which the committee of the General Medical Council has reported to be "insufficient") I think that their refusal a few years ago to acknowledge advanced studies in those subjects which had already been accepted by the General Medical Council shows strange inconsistency if not an entire reversal of policy. I ought, perhaps, to add that owing to the kind offices of the Vice-Chancellor of the University of Wales (Sir Isambard Owen), who was able more correctly to interpret their regulations than the Board could themselves, I was graciously informed a few weeks later that I would be admitted to their subsequent final examination. An application I then made to the Board for the return of the 20 guineas I had already paid in examination fees on account of "breach of contract" was not entertained. I may say that my experience at that time did not leave me with any superfluous feeling of loyalty to the Royal Colleges and I can only continue to regret that the exorbitant fees I paid for their diploma are not still in my pocket.

I am, Sirs, yours faithfully,
R. W. C. PIERCE, B.Sc., M.B. Lond., D.P.H.

Guildford, June 15th, 1903.

THE RELIEF OF PARALYTIC DISTENSION OF THE BOWEL IN OPERATING FOR INTESTINAL OBSTRUCTION.

To the Editors of THE LANCET.

SIRS,—In a letter under the above heading in THE LANCET of May 2nd, p. 1263, Mr. John D. Malcolm says that "when the gut is paralysed at the seat of obstruction and the part above is also completely paralysed by distension the chances of recovery are very remote in any circumstances of treatment." It may be of some interest in this connexion to observe that in the end of 1900 I recorded a case of obstruction of the small intestine in which the bowel was completely paralysed at the site of obstruction which was due to a constriction brought about apparently by inflammatory action, the bowel at this point being quite constricted for two inches and partly adherent to an adjacent coil, while its surface was semi-bluish in colour with deposits here and there of inflammatory exudation. The bowel for several feet above was also paralysed and in a ballooned condition. Having relieved the distension with considerable difficulty by means or a trocar and cannula, I stitched up the opening, returned the bowel, and closed the abdominal wound as quickly as possible owing to the very feeble condition of the patient who had been some days ill before being brought to hospital. The patient did well.

In the following year at another station a hillman was brought to hospital with great abdominal distension and evident symptoms of obstruction accompanied with vomiting and very distressing hiccough, having been brought only after trying many native remedies. On opening the abdomen I found the small intestine enormously distended, the cause of which I did not discover. There was no peritoneal inflammation and I could not say that the bowel was completely paralysed. In this instance, profiting by the experience of the previous case, I made a free incision in the bowel transversely to its axis and washed out a portion of it with warm boric lotion, having a considerable portion of the gut outside the abdomen. The opening having been stitched the bowel was returned and the abdomen was closed. The stomach being greatly distended I also laved that organ before the patient came out of the influence of the anæsthetic by means of a funnel attached to a tube passed down the œsophagus. The patient did well, at once experiencing relief from the intense restlessness, distension, and vomiting. The hiccough diminished gradually and disappeared in from two to three days.

In both cases the whole attention was devoted to relieving distension and little time to the actual seat of obstruction. Mr. Malcolm lays great stress upon "the recognition of the state of the bowel which has been nipped" as regards its recuperative power. Unfortunately in India cases of obstruction of the bowel—apart from hernial strangulation—come to hospital as a rule so late that whatever is to be done has to be done quickly and I doubt whether in such cases the time spent in searching out and studying the seat of obstruction would not be more profitably spent in relieving the pressing symptoms.—I am, Sirs, yours faithfully,

D. SIMPSON, Major, I.M.S.

Coimbatore, Southern India, May 28th, 1903.

THE INFECTIOUS NATURE OF PULMONARY TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—While reading "Humphrey Clinker" I was surprised to find that Smollett recognised the infectious nature of consumption. Matthew Bramble in one of his letters to Dr. Lewis says:—

April 28th.

You won't deny that many diseases are infectious, even the consumption itself is highly infectious. When a person dies from it in Italy the bed and bedding are destroyed, the other furniture is exposed to the weather, and the apartment whitewashed, before it is occupied by any other living soul. You'll allow that nothing receives infection sooner or retains it longer than blankets, feather beds, and mattresses.

Smollett wrote "Humphrey Clinker" in 1770 while living at Leghorn and probably obtained his information from direct observation.

I am, Sirs, yours faithfully,
S. G. FLOYD, M.D. Lond.

Ilfracombe, June 11th, 1903.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Inoculation Mishap in the Punjab.—The Plague Epidemic.—Outbreak of Typhus Fever in the Quetta Peshin District.

THE unfortunate mishap which occurred at Malkowal last autumn when some 18 of the inoculated persons were attacked with tetanus completely wrecked the great inoculation campaign organised by the Punjab Government for the past cold season. In the winter of 1901-02 the provincial plague mortality rose to thousands daily and the recent cold season was fixed upon for the great experiment. The campaign was commenced on Oct. 6th and nearly 200,000 people were inoculated before the disastrous accident on Nov. 9th. During the succeeding six months about 300,000 more inoculations have been performed, but this is a trifle compared with the millions which were calculated for—in fact, only about 5 per cent. Plague has been steadily increasing

in the Punjab, year by year attacking larger numbers and spreading over wider areas. All the usual preventive measures have been unavailing. The provincial plague mortality of the past six months has broken even the previous high record. From the inoculations performed there is further evidence in favour of the operation. The mortality among the inoculated is reported to have been only 25 per cent., whereas among the uninoculated it was 60 per cent.

The past two weeks have shown a vast improvement in the plague mortality throughout India, but there has also occurred a fresh outbreak in an entirely new province. Dilrugarh in Assam reports cases for the first time and 16 cases with eight deaths have occurred there. The numbers are small but this outbreak shows a fresh centre of infection which may develop with great intensity next season. The total plague mortality for this week is 10,573 against 15,408 for the previous seven days and as compared with 5490 for the corresponding week last year. The details are: Bombay city, 280 deaths; Bombay Presidency, 481 as against 701 for last week; Karachi, 124 (the outbreak in this city is still raging very severely); Madras Presidency, 8; Calcutta, 47; Bengal Presidency, 146; United Provinces, 474 (a decline from 800); Punjab, 8887 (a decline from 12,206); Central Provinces, 13; Mysore State, 25; Hyderabad State, 7; Berar, 3; Rajputana, 6; Kashmir, 63; and Assam, 8.

An outbreak of typhus fever is reported in the Quetta Peshin district. Those attacked have been chiefly foreigners and outsiders from Afghanistan, but some of the native troops and followers have been victims. The disease has evidently been imported from Afghanistan. It is also reported to have broken out in the Seistan Arbitration Commission Camp, but the Seistan villages apparently experience this disease every year.

May 29th.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

"*Unauthorised Vaccination.*"

THE above is the heading to the report of a case tried before Judge Bradbury at the Bury county court. The plaintiff, a child, sued through her father and the allegation against the defendant, Dr. A. E. Brindley, medical officer of health of Bury, was that while the child was an inmate of the Infectious Diseases Hospital he vaccinated her. She was admitted on March 5th suffering from scarlet fever, and when discharged on April 18th the father found that she had been vaccinated. In November, 1898, he had obtained an exemption from vaccination for this child. A letter was sent to Dr. Brindley claiming £5 damages for assault. In his evidence Dr. Brindley said that from October last until March 22nd there had been between 60 and 70 cases of small-pox. While the plaintiff was in the scarlet fever ward a case of small-pox occurred in the ward in an unvaccinated child which proved fatal. There were 20 other unvaccinated children in the ward and he felt it necessary to vaccinate the whole of them. He had not time to consult the parents of the children and the matter was so serious that delay would have been dangerous. The only other alternatives to vaccination were isolation which could not be effected, or sending the children to their homes with the possibility of most serious consequences. Dr. E. W. Hope, medical officer of the city and port of Liverpool, said that in his opinion, Dr. Brindley took the only course he could. The lawyer for the plaintiff submitted that the child was admitted to the hospital suffering from scarlet fever and to be treated for that disease and not to be treated for small-pox. "His Honour held that the medical officer was under a statutory obligation and legal liability to take all proper steps to secure the safety of the whole of the children and patients under his charge. Under all the circumstances he thought Dr. Brindley was entitled to take the course he did and he therefore gave a verdict for the defendant with costs. Leave to appeal was granted." Most of us will think that the parents of the children and the whole public of Bury owe a deep debt of gratitude to Dr. Brindley.

Coöperative Charity Subscriptions.

The Lancashire district divisional meeting of the Coöperative Wholesale Society at its meeting at Southport on June 13th agreed to give the following contributions to medical charities. Towards the extension fund of the Leicester Royal Infirmary £1000 were given and to the Luton Bute Hospital extension fund £21; the subscription to the Manchester Royal Infirmary was increased from 31 guineas to 100 guineas, to the Manchester and Salford Hospital for Skin Diseases from five guineas to 50 guineas, to the Salford Royal Hospital from ten guineas to 50 guineas, and to the Manchester Southern Maternity Hospital from five guineas to 30 guineas. New donations were made to a number of Liverpool charities and larger sums were voted in other cases. To show the large scale of the society's business it may be mentioned that the report stated that the total sales for the 13 weeks ended March 25th last amounted to £4,558,024.

"*A Hearty Meal.*"

According to a short statement in the *Manchester Guardian* an old woman living in Lancashire who "had nearly attained her hundredth birthday" died on June 10th "after a hearty meal." This is not infrequently the case. It seems as if, "feeling well and hearty," as many old people do till their waning strength is tried a little too much, they forget their feeble power of digestion, eat heartily, probably with haste and little mastication, and then collapse. It is one of the dangers of which old people should now and then be reminded.

Death of Mr. Richard Crean, M.D. Brux., L.R.C.P., L.R.C.S. Irel.

By the death of Dr. Crean the medical profession in Manchester has lost a well-known and respected colleague. He died on June 13th. A few days before Whitsuntide he had an attack of influenza but a week before his death he was out visiting his patients, having apparently recovered. However, double pneumonia set in and in spite of all efforts by Dr. J. W. Hamill, Dr. Brown, and Dr. J. Dreschfeld the issue was fatal. One cannot say whether or not Dr. Crean might have escaped the attack of pneumonia if he had remained at rest a little longer, but we do know how vulnerable a patient is after an apparently complete recovery from a disease so treacherous as influenza. He was gold medalist, exhibitioner, and treble first-class honour man, Catholic University, Dublin, a member of the Manchester Medical Society, surgeon to the 17th Lancashire Rifle Volunteers, late honorary assistant surgeon to the Manchester Royal Eye Hospital, &c. His death at the comparatively early age of 58 years will be lamented by a large circle of friends and patients. He leaves a widow, two daughters, and a son who is in the army and at present in the West Indies.

Meerschaum Clay.

At the meeting of the Manchester Geological and Mining Society on June 9th some remarks were made on meerschaum clay which may perhaps interest a not inconsiderable proportion of the medical profession. Mr. Joseph Dickinson said he had seen a notice recently that the chief supply was obtained at Brusa in Asia Minor, where it is found as a white earth in a bed of clay. Holes are dug till the bed of red clay is reached, and in this the meerschaum clay lies in isolated kidney-shaped pieces usually of about the size of a walnut and rarely larger than an apple. The latter comparison reminds one of something said to be of the size of a piece of chalk. But Mr. Dickinson said his principal reason for mentioning the matter was that he had often seen identical deposits in the red ground accompanying the stratified iron ore of county Antrim. Its only use, so far as the Irish miners were concerned, was as a healing plaster. He hoped attention might be directed to the possibility of its suitableness for other useful purposes.

A Fever Patient at Large.

It appears that at Stockport the privilege of spreading scarlet fever costs something over half-a-crown. A woman was summoned before the magistrates there on June 9th for wilfully exposing a child although she had been told by a medical man that her child had scarlet fever. The child was found playing in the street, although "in a very dangerous state of infection." There were several other cases of the disease in the same street. It seems very difficult to make people of a certain class understand the wrong that they do by exposing infectious cases and it is doubtful if a fine of half-a-crown and costs will sufficiently quicken either their intelligence or their conscience. Though imprisonment may seem harsh, an example or two would have more effect than many fines.

June 16th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Cardiff Infirmary Festival Dinner.

FUNDS have been raised for the Cardiff Infirmary by means of bazaars, balls, theatrical performances, Hospital Sunday and Hospital Saturday collections, and in many other ways, but the first festival dinner in connexion with the institution was only held on June 11th last. Lord Tredegar occupied the chair on the occasion and pointed out that subscriptions given to the infirmary were less liable to imposition than any other form of charity, for nobody broke his leg or caught a fever on purpose to gain admission to a hospital. The subscriptions announced during the evening amounted to £1201 and included £700 from Lord Tredegar who is also a munificent supporter of the Newport (Mon.) Hospital.

Prayer-meetings and the Spread of Disease.

It has so long been the custom in Wales to hold a prayer-meeting in the house where a dead body is lying prior to burial that it is an exceedingly difficult matter to persuade the inhabitants to discontinue the practice even where the deceased person has died from an infectious disease. Although the sanitary authorities are as a rule reluctant to interfere with the religious customs of the country, in several large urban districts appeals have been made with varying success to clergymen and ministers to discourage such meetings. When a Cardiganshire medical officer of health recently reported upon an outbreak of diphtheria he said that in one house where a fatal case had occurred scores of children were present at the funeral meeting and saw the corpse of the dead child. It is to be regretted that one member of the district council to which the report was made approved of these gatherings and said that it was "good for the living to see the dead."

The Dispensing of Medicines for Paupers.

In the course of an inquiry held at Cardiff on June 9th by Mr. F. T. Bircham, one of the Poor-law inspectors of the Local Government Board, into the circumstances which had led to the dismissal of a dispenser employed by the Cardiff board of guardians, evidence of an extraordinary description was tendered. The dispenser is said to have given medicines other than those prescribed by the medical officers, but he explained, and he was corroborated by other witnesses, that one child was often sent for medicines for several different persons and that there was frequently a "perfect scramble" to secure the bottles as they were dispensed. The inspector very properly described such scenes as shocking and told the dispensary committee that it ought to provide the dispenser with assistance in maintaining order.

Merthyr Tydvil Hospital.

A short time ago Sir W. T. Lewis promised a sum of £1000 towards erecting a children's ward for the Merthyr Tydvil Hospital provided that another £1000 were subscribed by the townspeople. The sum has just been raised and the work will shortly be commenced. The new ward will be named "King Edward VII. Ward."

Typhoid Fever in the Rhondda Valleys.

Until the completion of the Rhondda main sewer and the adoption of the water-carriage system over nearly the entire district eight years ago typhoid fever was endemic in the two valleys. In one year—1893—there were 91 deaths, or nearly 1 per 1000 of the total population. Latterly, however, outbreaks of the disease have been more localised and have usually been traced to persons drinking water from the mountain streams. In the middle of March last a sudden outburst which occurred at Porth, a district situated at the junction of the valleys, was attributed by the medical officer of health (Dr. J. D. Jenkins) to a supply of milk obtained from a neighbouring rural district. During the first two weeks of March not a single case of the disease was reported throughout the whole of the Rhondda district, in the third week there were 14 cases, and in the fourth week 44 cases; during April there were 58 cases and during May there were 42 cases. Of these 158 patients 124 were directly or indirectly infected by the milk-supply mentioned and 23 died. The accommodation of 36 beds at the newly erected isolation hospital was taxed to its utmost and it was found possible to remove only about one-half of the patients. For a working-class district with a population of 120,000 persons the existing hospital is absurdly inadequate and as there is ample room on the site for more buildings the district council will be well advised if it decides to proceed with enlargements without delay.

June 16th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal Hospital for Sick Children, Glasgow.

A COUNTRY branch of this hospital was formally opened on June 9th at Drumchapel, a suburb about 20 minutes distant by train from the centre of the city on the main line of the North British Railway to Dumbarton. The number of available beds in the Children's Hospital up to the present time has been only 74. The directors have for a very long time recognised the urgent need for giving in-door treatment to a greater number of the more severe cases taken to the out-door branch or dispensary. With this object in view a public appeal was made recently for the necessary funds for building and equipping a new hospital. In the meantime Miss Margaret Montgomery Paterson of Edinburgh generously offered to spend £6000 in erecting in memory of her parents an extension or branch of the hospital in the country to which certain classes of cases requiring more prolonged treatment could be removed. The building has now been completed and formally opened by Miss Paterson. There was a large gathering present on the occasion, including most of the directors, the medical staff, members of the Ladies' Auxiliary Association, and others interested in the hospital. The Lord Provost, Sir John Ure Primrose, Bart., presided. This is the first hospital in the city which has erected and equipped a country branch, as distinguished from a convalescent home, for the treatment of the more chronic forms of disease, and no doubt the experiment will be watched with some interest by the directors of large hospitals where great extension and rebuilding are proceeding or are contemplated. The building at Drumchapel has been designed meantime to contain two large airy wards with 12 beds in each, but provision has been made for adding two other wards as occasion may require. In connexion with the lower ward there is a sun-room about 40 feet long by 10 feet wide, inclosed with large glass windows and doors, into which the beds may be wheeled. Access from the upper room can be had to the roof of the sun-room, the safety of the children being secured by a stone parapet. The latrine accommodation is excellently arranged and all the fittings are of the most modern type. Ventilation is secured by ventilating radiators placed in the windows assisted by Sheringham valves set in the walls and Munn's extracting ventilators in the roof and by open fireplaces. A small isolation ward is also provided in view of the possibility of an outbreak of infectious disease. The accommodation for matron, nurses, and servants is ample. It is the intention of the directors to intrust the medical care of the children to the junior members of the dispensary staff, who will visit regularly and at the same time be in touch with the physicians and surgeons of the hospital from whose wards the patients will be sent to the country branch. Another interesting gathering in connexion with this institution has just taken place. It is now 20 years since the hospital was opened. The matronship during this long period has been held by Mrs. Harbin. She has now retired and the directors in association with the staff and friends of the hospital took the opportunity of indicating their appreciation of her past services by presenting her with a testimonial. This took place in the hospital on June 10th, at a large meeting presided over by Mr. Philips, chairman of the directors. Mrs. Harbin was well known for the thorough and energetic way in which she managed her department and everyone recognises that she has earned a well-deserved rest, though her retirement means a great loss to the hospital.

Small-pox in Dundee.

The Local Government Board of Scotland intimates that during the period from June 1st to 15th inclusive four cases of small-pox have been reported to the Board, all from the burgh of Dundee.

June 16th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Visit of the King to Ireland.

IT is now definitely arranged that His Majesty the King is to visit Ireland during the third week in July and after spending some time in Dublin he will go north and then south, while in Ulster he will open the new Royal Victoria Hospital which is now almost completed and which has been erected by the citizens as a memorial of his late mother, Queen Victoria.

Queen's College, Cork: Triennial Visitation.

The triennial visitation of the Cork Queen's College was held on June 6th. The visitors were the Right Hon. Lord Justice Holmes (chairman), the President of the Royal College of Physicians of Ireland (Dr. A. V. Macan), and the President of the Royal College of Surgeons in Ireland (Dr. L. H. Ormsby). The president of the College, in addressing the visitors, referred to the excellent discipline maintained and to the distinguished positions which were obtained by past students of the College in various parts of the globe since the last visitation was held. He deplored the fact that there was no endowment for a chair of pathology but he was happy to be able to inform them that the council of the College had succeeded in securing the services of Dr. A. E. Moore, a distinguished lecturer on pathology, who devotes his whole attention to the subject. Lord Justice Holmes mentioned that his colleagues were anxious to ask some questions and Dr. Macan then said that he was anxious to learn what opportunities the students had for gaining a knowledge of clinical midwifery and clinical gynæcology. He also inquired whether the professor of midwifery was *ex-officio* appointed a member of the staff of a midwifery and gynæcological hospital. In reply, Professor H. Corby named the institutions in which those subjects were taught and gave details. He said that he was not appointed to any position in a clinical hospital because he was professor of midwifery, but, on the other hand, one of the reasons for his having obtained the chair of midwifery was because he already held those hospital appointments, as it was considered that he could not adequately discharge the duties of the chair if he had not had experience in clinical teaching in those subjects. Dr. Ormsby, who had notes of various subjects on which he desired information, asked amongst other questions what were the facilities for giving clinical instruction in medicine and surgery. Professor W. E. A. Cummins gave interesting particulars on the subject and expressed an emphatic opinion that a Cork student was fortunate in having such an amount of clinical material at his disposal. Dr. Ormsby also inquired as to the methods adopted for imparting instruction in pathology and bacteriology. Dr. Moore gave particulars with regard to the pathological laboratory and mentioned that he had both theoretical and practical classes. Just as the visitors were about to adjourn to visit the departments of the College, Professor Corby, who in the meantime had procured a copy of the last report of the Royal Commission on Irish University Education, mentioned that he had given evidence before the Commissioners and as part of his evidence had reference to some of the subjects on which the visitors desired information he asked permission to read portions of the evidence. Lord Justice Holmes said that they would be glad to hear it. The pith of the evidence was that the average number of Cork students who had passed the final examinations in medicine at the Royal University of Ireland since its foundation was 18·8 of the whole; that clinical examinations formed part of those examinations; that the inspectors of the General Medical Council had reported in laudatory terms of those clinical examinations; that since the foundation of the Royal University honours—first or second class—at the final examinations were awarded to 78 students and 23 of those 78 students received their education in Cork—that is to say, out of all the students who obtained honours at the Royal University at the final examinations in medicine 29 5 per cent. were students of Queen's College, Cork. To put it in another way, the students of the Cork Queen's College who obtained their medical degrees formed not quite one-fifth of the whole yet they managed to carry off not very far short of one-third of all the honours awarded. In a word, in proportion to their numbers they won nearly double the honours as against all the other candidates, though not a single one of the clinical examiners was connected with the Cork School of Medicine. Lord Justice Holmes, in giving the decision of the visitors, said that they considered that in the circumstances the College was exceedingly well equipped and they hoped that a chair of pathology would be established. They found absolutely nothing to find fault with and they considered that the professors had given them very full information.

Cork-street Fever Hospital, Dublin.

The managing committee held its usual monthly meeting on June 11th when the registrar reported that there was a falling off in the number of cases admitted during the month of May as compared with the previous month, those admitted being chiefly cases of scarlet fever and diphtheria with several severe cases of chicken-pox. The cases of enteric fever were few in number, as were also those of measles.

Dispensary Medical Officers' Salaries.

Mr. R. M. Blake, medical officer of the Ravensdale dispensary district, having applied to the Dundalk guardians for an increase of salary on the grounds that his district was the poorest in the union, that he had to attend 800 people whose valuation was under £4 10*s.*, that he had 25 years' service, and that his salary after 25 years' service was still the same as when he was appointed—viz., £100 as dispensary medical officer and £25 as sanitary officer—the guardians unanimously agreed to grant an increase of £25 per annum. It will be interesting to know whether the Local Government Board will approve of this increase or whether it will, as it has done in other similar cases, decline to indorse it.—At the meeting of the Cookstown board of guardians on June 13th, application was made by Dr. C. H. P. D. Graves, medical officer of the Cookstown workhouse and fever hospital, asking for an increase of salary on the ground that he had been 12 years in office at the same annual salary—£50—as when appointed, while his predecessor had £90 per annum. The clerk is to submit at the next meeting a return showing the emoluments which Dr. Graves had received from the guardians and council and also whether he was a member of the Tyrone Medical Association and also if there was no agreement at the time of his appointment regarding increase of salary.—Mr. H. Harris of Stewartstown also applied for an increase of salary as dispensary medical officer and medical officer of health. He has been 20 years in office without any increase of salary, though other officials had not been treated in this way. The Cookstown board of guardians had approved of a resolution passed by the Abbeyleix Union, requesting the Irish Parliamentary party to take steps to have medical officers excluded from the benefits of the Superannuation Bill unless the present unreasonable (?) demands of the medical profession are withdrawn.

June 16th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Hydrophobia in Paris.

M. PROUST in his report to the council of hygiene upon hydrophobia in Paris for the year 1902 states that never before has the position in regard to that disease been so favourable in the department of the Seine. In 1902 there were treated for hydrophobia at the Pasteur Institute 1016 persons; in 1901 the number was 1321. In 1902 the statistics of the institute showed a mortality of three, but only one of these three persons had been bitten in the department of the Seine. In 1901 the deaths numbered 12 and of these nine persons had been bitten in the department of the Seine. In 1900 the deaths of persons bitten in the department numbered ten. The number of rabid dogs has also diminished. In 1901 they numbered 846, but in 1902 only 474. The reports of the Pasteur Institute have never before showed such a low mortality from rabies—namely, 0·18 per cent. M. Proust hopes that the results for 1902, as well as those emanating from foreign countries where the campaign against rabid dogs is carried out, will encourage the prefect of police to apply with great strictness the regulations already put forth by the council of hygiene, the good results of which are now beginning to be appreciated.

Reform of the Quarantine System.

I mentioned in a former letter[1] how M. Teissier, Professor at the Faculty of Medicine at Lyons, lost his son, who was

[1] THE LANCET, March 21st, 1903, p. 844.

returning from Egypt, owing to typhoid fever contracted in the lazaretto at Frioul. M. Teissier, at the meeting of the Academy of Medicine held on June 2nd, complained of the whole French sanitary service in which, he said, nothing is done to guard against the entry of infectious diseases at French ports, although every custom which can annoy passengers is religiously observed. The disinfection of ship, cargo, and of passengers' baggage is absolutely illusory. Bales of merchandise which very probably shelter plague-stricken rats and the mail-bags are disembarked without any disinfection. The baggage of passengers is not opened but is simply sprinkled with a weak solution of sublimate. In 1902 the ship *Portugal* arrived at Marseilles from Alexandria where plague was prevalent. Hundreds of bales of cotton full of rat-holes were disembarked and without more ado were given free pratique. As for the disinfection of personal effects each passenger was compelled to give up nothing but a pair of socks, a handkerchief, and a shirt. The excuse given was that the disinfecting stove was too small to take all the dirty linen of the passengers. The rest of the baggage was allowed to enter Marseilles without any other formality. M. Teissier compared this method with the English system which, according to him, works tactfully and protects the ports while conserving the rights of individuals and does not interfere unduly with trade. The French method comes to an end with a vexatious imprisonment in a barrack, as badly managed as possible. "Suspects" stay there for a term the duration of which is arbitrarily fixed by the director of the Sanitary Department. When this term is ended anyone can go where he likes and thus if later plague should declare itself such person becomes a focus of infection in an inland town without the sanitary authorities having had any warning. M. Teissier argued that preventive injections of anti-plague serum are a certain safeguard against the development of the disease in persons coming from an infected region if there is no sign of plague on them at the port of entry and it would be easy to make such injections compulsory. Finally, M. Teissier proposed that a consultative committee of control should be nominated to sit conjointly with the authorities of the sanitary service and to this committee should be assigned for judgment all cases of litigation and the duration of the quarantine should also be fixed by it. He demanded also the suppression of the discretionary power of the director of the Sanitary Department, for this official, as things now stand, can refuse entry to France of Frenchmen sailing under a foreign flag. As a consequence, during the rest of their voyage, which may last ten days, to Plymouth or London these unfortunate people, who may be coming home ill, though not infectious, are quite likely to die on the way and to be then buried at sea. In a word, M. Teissier considers that the whole French sanitary service should be reorganised, due consideration being given to preventive injections of serum, and he recommended the introduction of the English system of a sanitary passport which provided safety and was not so vexatious as imprisonment. The Academy will shortly proceed to the discussion of this important matter.

June 16th.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Plague in Berlin.

As already mentioned in THE LANCET of June 13th, p. 1684, a young medical man has just lost his life in Berlin in very sad circumstances and another name has been added to the long list of medical martyrs to science. The deceased was Dr. Milan Sachs of Agram in Croatia, who had been sent by the Austrian Government to Berlin for the purpose of studying infectious diseases in Professor Koch's Institute. He fell ill on June 2nd and in the evening of June 4th he became so much worse that he was admitted into the municipal hospital of Charlottenburg, a suburb of Berlin where he lived. The symptoms appeared to point to pneumonia, but when it became known that the patient had worked in Professor Koch's laboratory, and especially in the plague department, the sputum was carefully examined, with the result that plague bacilli were found and Dr. Sachs was thereupon immediately removed with the utmost precautions to the department for infectious diseases which belongs to Professor Koch's Institute and is in connexion with the Charité Hospital. Here he received injections of Roux-Yersin serum, but notwithstanding all that could be done he unfortunately succumbed on the evening of the 5th. For the purpose of discussing the measures which it might be necessary to take in view of the possibility that the disease might spread a meeting was at once held in the Charité Hospital, under the presidency of the chief of the Berlin police, those present including officials of the Imperial Health Office, the chief medical officer of the Berlin police, the medical member of the Berlin town council, and the medical staff of the Charité Hospital and the Charlottenburg Hospital. The meeting agreed that the fact of a case of plague having occurred in the city should be communicated to the newspapers as the best means of preventing the alarm which was likely to be created by the publication of vague and inaccurate statements. Strict isolation of all persons who had been in communication with Dr. Sachs during his illness was also ordered, and for this purpose some of the wards of the department for infectious diseases were cleared of the patients already in them and were reserved exclusively for the reception of those who had been exposed to the danger of infection with plague. Not only the family with whom Dr. Sachs had lived in Charlottenburg, but also several hospital nurses, attendants, and porters, and three medical men were isolated; no communication with them was allowed and policemen were stationed at the entrance to prevent the orders to that effect being evaded. All the furniture and articles of general use in the residence which Dr. Sachs had occupied were destroyed by fire, full value being paid to the owner by the Treasury in accordance with the provisions of the Infectious Diseases Act; the place was then completely emptied and thoroughly disinfected. Meetings of the authorities, both police and sanitary, took place nearly every day under the presidency of the Minister of Public Instruction, acting as chief of the Government medical department. It has been reported that the Government intended to prohibit the carrying on of investigations relative to plague and other virulent diseases. This is erroneous, as it is recognised that such researches are indispensable, but it is probable that experimental work will be more strictly controlled in future and that the admission of foreigners to this particular laboratory will be rendered more difficult. All those who have been placed in isolation received injections of Roux-Yersin serum. Their health has hitherto been quite satisfactory with the exception that one of the male attendants who had nursed Dr. Sachs at the Charlottenburg Hospital felt ill after admission and his temperature rose slightly, so that he was suspected of having caught the disease, but as he completely recovered after 24 hours his symptoms were attributed to the injections, especially as microscopical examination of his blood showed nothing abnormal. Subsequently, however, his sputum was tinged with blood and was found to contain virulent plague bacilli; the injections of Roux-Yersin serum were therefore continued and the patient's state is now said to be satisfactory. The public do not exhibit any alarm on the subject, being evidently convinced that all necessary precautions are being taken.

Physiological Action of the Becquerel Rays.

Dr. Loudon of St. Petersburg has published in the *Berliner Klinische Wochenschrift* some interesting observations relative to the action of the Becquerel rays on the nervous system and on the eye. He found that when a box containing bromide of radium was placed in a cage in which mice were kept the animals became paralysed and comatose and died in five days. He also found that persons who are either totally blind, or have only the feeblest possible perception of light, are peculiarly sensitive to the Becquerel rays and are able to form visual conceptions of the contour of objects the shadows of which are shown on a screen by means of the rays.

June 15th.

NEW YORK.

(FROM OUR OWN CORRESPONDENT.)

Quarantine Laws of the United States.

VESSELS arriving under the following conditions shall be placed in quarantine: (*a*) with quarantinable disease on board or having had such disease on board during the voyage; (*b*) any vessel which the quarantine officer considers infected; (*c*) if arriving at a port south of the southern boundary of Maryland in the season of close quarantine, May 1st to

Nov. 1st, directly or *viâ* a northern port, from a tropical American port, unless the said port is known to be free from yellow fever; (*d*) in the case of vessels arriving at a northern port without sickness on board from ports where yellow fever prevails the *personnel* shall be detained under observation at quarantine to complete five days from the port of departure; and (*e*) towboats and other vessels having had communication with vessels subject to quarantine shall themselves be quarantined if they have been exposed to infection. Vessels arriving under the following conditions need not be subject to quarantine: (*a*) vessels from yellow fever ports bound for ports in the United States north of the southern boundary of Maryland with good sanitary condition and history, having had no sickness on board at ports of departure, *en route* or on arrival, provided they have been five days from the last infected or suspected port; and (*b*) vessels engaged in the fruit trade may be admitted to entry without detention provided that they have complied in all respects with the special rules and regulations made by the Secretary of the Treasury with regard to vessels engaged in the said trade.

To restrict Hospitals for Consumptives.

Governor Odell has signed the Goodsell-Bedell Bill prohibiting the establishment of any hospital or camp for consumptives in any town in New York State without the formal consent of the supervisors of the county and town board of the town.

Death of Dr. T. G. Morton.

Dr. Thomas G. Morton, the well-known surgeon of Philadelphia, died at Cape May, N.J., on May 20th after a short illness. Dr. Morton was born in Philadelphia on August 8th, 1835, and was the son of Samuel George Morton, himself a distinguished medical practitioner. He graduated in medicine from the University of Pennsylvania in 1856, after which he began practice as a surgeon in his own city. At the beginning of the American civil war he became actively identified with the establishing of military hospitals. He was surgeon at Satterlee Hospital and consulting surgeon to the United States Hospital at Chesnut Hill, Pennsylvania. He was the founder of the Philadelphia Orthopædic Hospital and in 1876 was appointed a commissioner to erect a State insane asylum for the southern district of Pennsylvania. He devised many mechanical improvements in hospitals, he wrote many papers on surgical matters, and published works on the transfusion of blood and its practical application. The late Dr. Morton was a member of several foreign medical and scientific bodies.

An Automobile Bill in New York State.

Governor Odell has signed the Doughty-Bailey Automobile Bill. The principal features of the new law are as follows. Speed is restricted to four miles an hour when crossing a dam or causeway less than 20 feet in width. Speed is restricted to eight miles an hour within a radius of half a mile from a post-office or a greater radius if the local authorities so elect, when passing in either direction a person driving a horse or domestic animal or passing a pedestrian in the roadway, when crossing an intersecting main highway, and in the closely built-up portions of cities. Speed is restricted to ten miles an hour when passing a public school during school hours or a church during the hours of service. Speed is restricted to ten miles an hour in the suburbs of cities where the houses are more than 100 feet apart. Speed is restricted to 20 miles an hour in the open country where post-offices, school-houses, churches, causeways, cross roads, drivers or pedestrians do not conflict. A motor must be stopped on request of a rider or driver.

June 8th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Treatment of Consumption in Victoria.

COMPARATIVELY little has been done in Victoria for the treatment of early cases of consumption in sanatoriums. One institution of the kind has been established for many years at Echuca and more recently a branch of this establishment was started at Macedon. Consumptive patients, generally in advanced stages of the disease, are also received at the Austin Hospital for Incurables. The Board of Health is considering the whole question of the treatment of tuberculosis and Dr. Gresswell has just visited the sanatorium at Echuca. He considers that the area of ground is too small and that the site is not suitable because of its being shelterless and cramped and of there not being sufficient area for recreation purposes. Some of the country hospitals have offered to receive consumptive patients referred to them by the Board of Health. The Amherst Hospital will accommodate eight and the Kilmore Hospital six patients.

The Lunacy System of Victoria.

Recent criticisms of the lunacy system are commented upon in a report which the Chief Secretary has received from Dr. Jamieson and Dr. Joske, who are two of the official visitors to the metropolitan asylums. They state that their aim has been "to present an account of the institutions as they are, not passing over their defects and yet trying to be fair." They say that most, if not all, of the genuine defects recently pointed out have been made the subject of remark, and many of them repeatedly, in the official reports. It is admitted that the main building at Kew is badly planned, the construction being so defective and the means of escape so deficient and badly placed that an outbreak of fire might lead to a dreadful catastrophe. As the result of continuous overcrowding rooms which are little better than wide corridors are used not only as sitting- and recreation-rooms but also have to serve as dining-rooms. Another result of overcrowding is that some of the wards are habitually too full and they are insufficient to allow of proper classification and separation of patients. Something might be done in the way of improvement by bringing into use spaces which are little or not at all occupied. Recommendations are made that at each asylum there should be a small detached building for the prompt isolation of infectious cases; that it might be advisable to leave all cell doors unlocked at night, as could easily be done with a sufficient increase in the number of night attendants, and that there should also be a system of electric tell-tale clocks. The visitors consider that something should be done at the earliest possible date to provide a suitable receiving house. Separate provision should be made without delay for patients whose friends are willing to pay for the accommodation. "There is no doubt," they say, "that there are now places clandestinely used as private lunatic asylums. In our opinion it would be better to supply good accommodation under State supervision than to license private establishments even under Government inspection." Another recommendation is that the superintendent of each asylum should be held responsible for all that takes place in his asylum. He should be under the direction of a board of management which should have complete control of the whole department. Such a board might consist of the Minister in charge of the department, the inspector, and a capable business man. They should have the services of a special architect not connected with the public works department. The visitors say that "the approaching retirement of the present inspector gives the department an opportunity of obtaining from without the State a new head who could regard the whole question of management from a fresh point of view." The final recommendation is that one of the metropolitan asylums should be converted into a strictly curative hospital. This would mean a great reduction in the number of inmates and of necessity the erection of other buildings elsewhere. It would be desirable, the report states, to bring from some place outside the State a new superintendent for this reorganised institution.

Protection of Illegitimate Children.

Dr. Mackellar of Sydney gave an interesting lecture on April 20th on the Protection of Neglected and Illegitimate Children in New South Wales. He gave a *résumé* of previous legislation and outlined and explained the provisions of the Bill introduced in the Legislative Council last session by himself and the Attorney-General. Careful perusal of the official statistics showed that during the last ten years 25,094 illegitimate births had taken place in that State. The very uniformity of the figures for that period indicated that in the absence of remedial measures it was fairly certain that this tale of shame and misery would be repeated during the next similar period. What was the cause? Dr. Mackellar had no hesitation in affirming his belief that certainly one of the principal causes lay in the absence of a comprehensive and drastic law which should fix upon the father of an illegitimate child the whole responsibility for his action. The illegitimate birth-rate of Sydney was 10 per cent. of the whole birth-rate and of the country districts it was something more than 5 per cent., the rate altogether for the colony being rather more than 7 per cent., which was a much

larger percentage than existed in any of the adjoining States and a much larger percentage than that of the United Kingdom. Moreover, in New South Wales the birth-rate as a whole had decreased 33 per cent. since 1864, while the illegitimate birth-rate had nearly doubled in that period. On the other hand, the illegitimate death-rate was just 241 per cent. higher than the legitimate—a circumstance which told its own tale. The fact that in New Zealand the illegitimate rate was only 4·42 per cent. and in South Australia only 3·76 per cent.—about half that of New South Wales—was significant, inasmuch as those were the only two Australasian communities in which there were really effective affiliation laws. It was also necessary legally to prevent the employment of children in street-trading—a species of employment which Dr. Mackellar quoted the authority of the Comptroller-General of Prisons for saying was as pernicious in its effects on the moral and physical well-being of the children following it as the factory system at its worst, at least one-half of the criminality in the State being traceable in the first instance to truancy and street-trading. Added to that was the testimony of the superintendent of the Carpenterian Reformatory at Brush Farm that 80 per cent. of the children who were committed by magistrates to that institution were sent there because of crimes having their origin in the same manner.

May 8th.

Obituary.

JOHN BIRKBECK NEVINS, M.D. LOND., M.R.C.S. ENG.

THE recent death of Dr. J. B. Nevins of Liverpool has removed one of the most prominent medical personages in that city. At the age of 84 years he had outlived nearly all the colleagues of his earlier days. As an old pupil of his I can bear testimony to his influence and powers as a teacher, especially in the subjects of the early portion of the medical curriculum. As medical tutor at Guy's Hospital he had acquired the art of teaching practically and with accuracy. I believe Sir Samuel Wilks was one of his pupils there. His knowledge of medical botany and the materia medica was the best of its time, and he taught these subjects as they are seldom taught in these days. He was ever active and studious and his reading and occupations went far outside the field of medicine. His line of practice was general but he was specially interested in ophthalmic work. Had he followed medicine only he would have certainly become more widely known than he was. He probably dissipated his energies too much. His attitude and efforts towards the Contagious Diseases Acts brought him into conflict with the main body of the profession in later life and must have cost him much pain and obloquy. But this was a matter of conscience with him, and being a deeply religious man he felt keenly the nature of the provisions relating to the working of that measure. His warmest friends had to agree to differ from him and regretted that he spent so much labour in opposing the views of others who could not see eye to eye with him. To the last, when retired from active practice, his mind was engaged with literary work and all matters of scientific or antiquarian interest enlisted his attention. He was a sincere and kind friend, simple and unassuming, content to do his duty, and guided by a fervent Christian faith. Those who best knew him will longest cherish kindly memories of him.

D. D.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Selikh Yanovich-Chaïnski, *privat-docent* of surgery in the Military Medical Academy of St. Petersburg.—Dr. Fernando Poló y Grijalbo, professor of midwifery and gynæcology in Saragossa.—Dr. Joseph de Smeth, formerly professor of psychiatry and of general pathology in the University of Brussels.—Dr. David Haussmann, a Berlin practitioner whose name is well known as a writer on various medical subjects mainly connected with the practice of midwifery.—Dr. A. Dubler, formerly extraordinary professor of pathological histology in Basle, aged 46 years.—Dr. M. Huizinga, formerly professor of physiology in Groningen, where he succeeded Professor van Deen. His published works are mostly of a chemical nature.—Dr. Franz Saxer, prosector in the Leipsic Anatomical Institute, from an abscess in the brain due to a dissecting wound.

Medical News.

UNIVERSITY OF CAMBRIDGE.—The following medical degrees were conferred on June 11th:—

M.D.—G. C. Garratt, Trinity.
M.B.—H. Robinson, L. E. Wigram, and H. D. Ledward, Trinity; J. A. Wood, St. John's; W. J. Sussmann, Caius; F. H. Parker, Pembroke; and W. W. Jeudwine, Selwyn Hostel.
B.C.—H. Robinson, L. E. Wigram, and G. W. Micklethwait, Trinity; G. B. Norman, St. John's; and R. S. Drew, Pembroke.

The Professorship of Surgery, which has been suspended for the last five years, is declared vacant. The election will take place during the Long Vacation. The electors are the Vice-Chancellor, Dr. L. Humphry, Professor A. Macalister, Sir M. Foster, Lord Lister, Dr. D. MacAlister, Professor J. Chiene, C.B., Professor T. Clifford Allbutt, and Mr. T. Holmes.—Dr. D. MacAlister, assessor to the Regius professor, has been appointed additional examiner for Part I. of the third M.B. examination in pharmacology and general pathology.—Mr. J. C. Simpson, M.D. Edin., has been approved for the research degree of B.A. in virtue of his dissertation, "On the Organisation of a Thrombus."

FOREIGN UNIVERSITY INTELLIGENCE.—*Basle:* Dr. Albert Gassmann of Berne has been recognised as *privat-docent* of Dermatology.—*Bonn:* Dr. Rudolf Rosemann of Greifswald has been recognised as *privat-docent* of Physiology.—*Budapest:* Dr. F. Reusz has been recognised as *privat-docent* of Neurology.—*Clausenburg:* Dr. Leo Davida, Professor of Descriptive Anatomy, has been ennobled in recognition of his services to education.—*Kazan:* Dr. Constantin Archangelski has been appointed to the chair of Pharmacology in succession to Dr. Dogiel. Dr. Savchenko has been appointed professor of General Pathology.—*Leyden:* Dr. P. T. van der Hoeven of Amsterdam has been appointed to the chair of Midwifery and Gynæcology in succession to Dr. Veit.—*Lyons:* Dr. Doyon has been promoted to be *professeur adjoint.*—*Marseilles:* Dr. Alezais has been appointed Professor of Anatomy.—*Moscow:* Dr. K. A. Buinévich has been recognised as *privat-docent* of Medical Diagnosis.—*Naples:* Dr. Francesco Lastaria has been recognised as *privat-docent* of Operative Medicine.—*New York Polyclinic:* Dr. J. A. Bodine has been appointed Professor of Surgery and Dr. Charles G. Kerley Professor of Pediatry.—*Odessa:* Dr. Khlopin of Iurieff has been appointed to the chair of Hygiene.—*Rome:* Dr. Francesco Valagussa has been recognised as *privat-docent* of Pediatry.—*Rostock:* Dr. Johannes Müller, assistant in the Physiological Institute, has been recognised as *privat-docent* of Physiology.—*Tomsk:* Dr. Timofeïevski, Extraordinary Professor of General Pathology, has been promoted to the Ordinary Professorship.—*Toulouse:* Dr. Bezy has been appointed to the chair of Children's Diseases.—*Vienna:* Dr. W. Mitlacher has been recognised as *privat-docent* in Pharmacology and Dr. Karl Strernberg as *privat-docent* of Pathological Anatomy.

HOSPITAL FOR EPILEPSY AND PARALYSIS, MAIDA VALE: OPENING OF THE NEW BUILDINGS.—The new buildings were opened on June 13th by Her Royal Highness the Princess Louise (Duchess of Argyll), accompanied by His Grace the Duke of Argyll. The Princess was received by the President, the Earl of Hardwicke, the committee, and the medical staff, who were then presented. Her Royal Highness was afterwards conducted to one of the large wards, where about 200 invited guests were assembled. The President gave a short sketch of the history of the hospital from its foundation in 1866. The new buildings, which with the exception of about one third of the front façade are now complete, afford ample accommodation for 40 beds out of the 60 which the complete building will eventually contain. The out-patient department is separated by a corridor from the main building and is complete in every respect. Mr. Knapp-Fisher, a member of the committee, further supplemented the remarks of the President and gave interesting details of how the necessary funds for the building were obtained and what further funds would be required to complete the building and to pay working expenses. After the Princess had declared the building open the Lord Bishop of London held a short service. The Rev. Canon Duckworth, one of the Vice-Presidents, was called on to propose a vote of thanks to the Princess, which was seconded by Dr. George Ogilvie, the

senior physician, who explained that the hospital was a special hospital for treatment of diseases of the nervous system. The majority of the patients came not from the immediate neighbourhood but from greater London and its outlying districts. Many also came from the provinces, Scotland, and even Ireland, so that the area from which the patients were recruited was a very large one. The medical staff had therefore great opportunities for studying nervous diseases and while trying to do something to add to human knowledge and to the relief of human suffering they never forget that, "si c'est la curiosité des maladies qui fait le savant, c'est l'amour des malades qui fait le médecin." The Duke of Argyll then rose and returned thanks for the Princess in a short and humorous speech. "Prosperity to the Hospital" was proposed by the Mayor of Marylebone and seconded by Sir Henry Burdett. The inspection of the hospital then followed, when the Princess was taken over the building by the matron, Miss Oldham, the secretary, Mr. Howgrave Graham, and the architect, Mr. Keith Young.

FREEMASONRY. — *The William Harvey Royal Arch Chapter.*—On June 4th, at the Criterion Restaurant, London, this chapter was consecrated by Sir Edward Letchworth, assisted by other grand officers. It gathers its members from the various hospital lodges and judging from the successful nature of its initiation is likely to prove a great success. The three principal officers appointed were Mr. C. Vincent Cotterell, L.D.S., Mr. W. J. Walsham, F.R.C.S., and Mr. J. Ernest Lane, F.R.C.S. Medical Freemasons belonging to the hospital lodges can obtain further particulars from Dr. R. J. Probyn Williams, 13, Welbeck-street, W.—*Chère Reine Lodge, No. 2853.*—The installation meeting of this lodge was held at the Trocadéro Restaurant, London, on June 2nd. W. Bro. Amand Routh, M.D., was installed as W.M. and invested the following officers: W. Bro. John Abercrombie, M.D., as I.P.M.; Bro. Carter Braine, F.R.C.S., as S.W.; Bro. Victor Corbould, J.W.; W. Bro. Rev. C. E. Wright, J.G.D., Chaplain; W. Bro. Rev. A. W. Oxford, M.D., P.G.D., Treasurer; W. Bro. Arthur E. Reade, P.M., Secretary; Bro. Jack Humphreys, S.D.; Bro. Peter Daniel, F.R.C.S., J.D.; R.W. Bro. Robert Grey, P.G.W., Dir. Cer.; Bro. Victor Partridge, I.G.; Bro. Hewitt Oliver and W. Bro. Francis Mellersh, P.M., Stewards. W. Bro. John Abercrombie, I.P.M., was presented with the P.M. jewel voted to him by the brethren of the lodge as a mark of their esteem and regard.

COMMEMORATION DAY AT LIVINGSTONE COLLEGE.—The commemoration day proceedings at Livingstone College took place at Leyton on June 10th. The Bishop of St. Albans presided and there were present Sir T. Fowell Buxton, Mr. T. F. Buxton, Mr. R. L. Barclay (treasurer of the College), Mrs. Bishop, Rev. J. T. Inskip (vicar of Leyton), and a number of medical men and ministers of various denominations. The Bishop of St. Albans, in the course of an interesting address, said that he came there with very great pleasure to say a few words on that most interesting occasion of this commemoration. He could not help adverting first of all to the name of that college. It was a great thing to have an inspiring name and he believed that the name of Livingstone would be a perpetual inspiration. He could not but think that those who came to the college as students before going out to mission work in various parts of the world would remember and retain the permanent influence of that inspiring name. There were many advantages attached to the work of the college, one special one being the help and assistance which it gave to the missionaries in the preservation of their own health and strength in the work to which they were called. This was a feature of the college which deserved, he ventured to think, special attention. There could be little doubt that the average life of a man abroad was considerably extended when due care was taken to observe the rules of health. He had himself noticed when in India some years ago that the young soldiers who came out there and led reckless and careless lives died very soon whilst others who took ordinary care of themselves lived much longer. He had spoken to the army medical officers often on the subject and they had told him that if the young soldier would only take real care of himself he might live in India almost as well as anywhere else. What applied to the young soldier applied also to every other Englishman living in the tropics. He was convinced that that college, which was based upon the principle that no missionary should proceed to the foreign field without some knowledge of medicine and surgery and of the laws of health, would receive the support of those who realised the immense importance of preserving the life of the missionaries who went to work abroad, and who realised further the immense advantage that was placed in the hands of those men and women who left our shores to carry the Gospel abroad and who were able to follow the Master not only in the teaching they gave to the souls but in the care they gave to the healing of the body. He was thankful that so many missionary societies had realised the value of that work and he was quite convinced that when it was thoroughly known it would receive large and munificent support.

VACCINATION GRANTS.—Mr. G. Shepley Page, public vaccinator for the Bristol district of the Bristol union, and Mr. E. J. Sheppard, public vaccinator for the Clifton district of the Bristol union, have been awarded the Local Government Board grant for successful vaccination.

GUIDES TO DEAL, FALMOUTH, AND TENBY.—For the convenience of visitors to these health resorts the town councils of the places mentioned have issued illustrated guides which can be obtained gratis by sending a post-card to the town clerks. Each guide consists of about 60 pages, printed in good type, and contains much historical information relating to places of interest. Details of excursions are also given, together with the cost of travelling, and recreations and amusements of various kinds are described. The books, which are published by the Health Resorts Development Association of St. Bride-street, Ludgate-circus, London, E.C., should be useful in settling the question, "Where shall we go for a holiday?"

COMPLAINT AGAINST A PUBLIC VACCINATOR.—At the meeting of the Chippenham board of guardians held on June 8th a letter was received from the Local Government Board stating that its inspector in his report of his recent inspection of public vaccination in the Chippenham union said that the public vaccinator of Sutton Benger had as public vaccinator continued to neglect his duties, notwithstanding his written undertaking, dated March 27th, 1902, that he would in future carry out his duties in strict compliance with the requirements of the Vaccination Act. The guardians, after some discussion, eventually decided to send a copy of the letter to the public vaccinator and to ask for his observations on the same.

ORAL INSTRUCTION OF THE DEAF AND DUMB.—Earl Carrington presided at a dinner at the Hotel Cecil, on June 11th, in aid of the funds of the Association for the Oral Instruction of the Deaf and Dumb, Fitzroy-square. After the loyal toasts the chairman proposed the toast of the evening, "Prosperity to the Association," and in doing so he traced its history from the commencement. He described the visit that he had paid to the training college and practising school in Fitzroy-square and advised those present to do likewise. He referred to the work of the Royal Commission and the subsequent passing of the Elementary (Deaf and Blind) Act, 1893, and the great action the association had taken in the training of teachers for public bodies and the spread of the pure oral system. Other speakers followed and Lord Crewe proposed "The Chairman," and in doing so remarked that the association was now a national institution and ought to be supported by the public at large. The director, Mr. William Van Praagh, announced donations to the amount of £3400, including £20 from His Royal Highness the Prince of Wales.

Parliamentary Intelligence.

HOUSE OF COMMONS.

THURSDAY, JUNE 11TH.

Emigrants' Lodging-houses in Liverpool.

MR. WEIR asked the President of the Local Government Board whether his attention had been directed to a petition signed by 125 residents and ratepayers of Great George-square, Liverpool, complaining that out of 34 houses in the square no fewer than 11 were used as common emigrant lodging-houses; whether he was aware that these houses were frequented by Italians, Russian Finns, Polish Jews, Galicians, and Scandinavians, and were frequently so overcrowded as to constitute a source of danger to the public health, and that one house was found on March 25th last to contain 86 persons in excess of the licensed number and another 61 in excess; and, if so, whether he would consider the expediency of having

these facts brought under the notice of the Commission on Alien Immigration and the corporation of Liverpool, by whom these houses were let on lease.—Mr. LONG replied: The hon. Member has given me an opportunity of seeing this petition and I have communicated with the corporation on the subject. I am informed that there is no foundation for the suggestion that certain houses are frequently so overcrowded as to constitute a danger to the public health, but as I stated on May 14th proceedings were taken by the corporation in respect of the overcrowding of two houses on March 25th last. I see no advantage in bringing this matter before the Royal Commission on Alien Immigration. I understand that evidence has already been given before it by the Liverpool medical officer of health. I am informed that in all cases where complaints are made by residents in the square of emigrants' lodging-houses being a nuisance, the corporation makes inquiry and uses every endeavour to insure that the premises are used in accordance with the conditions of the lease or of any license which may have been granted by the corporation to any lessee allowing the premises to be used otherwise than as a private dwelling house.

Plague in India.

Mr. WEIR asked the Secretary of State for India whether he would state the number of persons in each province of India who had been inoculated with plague serum since this system was introduced and whether he would say how many of these persons had since died from plague.—Lord GEORGE HAMILTON replied: The returns, so far as they are available, are given in the subjoined statement:—

	Number of persons inoculated.	Number of persons inoculated who have since died from plague.
Madras	21,404	Not known.
Bengal	34,332	31
United Provinces	8,538	26
Punjab	480,737	1,158
Central Provinces	10,649	34
Coorg	3	0
Berar	2,407	9
Bombay	599,857	1,482

The Sewage Question at Walmer.

Mr. HARWOOD asked the Secretary to the Admiralty whether, seeing that the sewage from the marine barracks and hospital at Walmer is discharged crude into the sea immediately opposite the town, he would explain why the Admiralty had declined to join the authorities of the town in establishing a system of treatment for this sewage.—Mr. PRETYMAN replied: The Admiralty has not declined to join the local authorities in establishing an improved sewage system. It has for a long time past been urging them to establish such a system.

The Affairs of the Local Government Board.

The House went into Committee of Supply and on the vote for the Local Government Board for England discussed the affairs of that department.

SIR WALTER FOSTER raised the question of death certification and the need for legislation in this connexion. So loose, he said, were the law and its administration that crime constantly escaped detection. The select committee of the House of Commons of 1893 was forced to the conclusion that vastly more deaths occurred from foul play and criminal neglect than the law discovered. A distinguished medical witness told the committee that he saw no difficulty in the way of any one's committing murder and getting the death certified and registered and the body buried without detection. He asked the President of the Local Government Board whether registrars throughout the country had been warned to accept certificates only on the prescribed form so as to check the acceptance of the loose forms often sent in to notify deaths; whether any steps had been taken to induce registrars to refer uncertified deaths to the coroner; whether any steps had been taken to carry out the recommendations of the committee that in the case of uncertified deaths an abstract of the evidence at the coroner's inquest should be submitted to the registrar-general; and, lastly, what steps the right hon. gentleman, or his department, had taken to encourage local authorities to carry out local inquiries into the cause of death in all uncertified cases in their area, as was done at Manchester, Glasgow, and Edinburgh.

Dr. FARQUHARSON also spoke in favour of the amendment of the law with regard to death certification and insisted that the Local Government Board was both overworked and underpaid.

Mr. FLOWER condemned the system of aggregating large numbers of Poor-law children in barrack schools where they could not be properly supervised and where outbreaks of disease were inevitable.

Mr. CROOKS, Mr. TOULMIN, Sir JOHN GORST, and several other Members joined in the condemnation.

Mr. CHANNING complained of the scale of fees and charges for the administration of the Vaccination Acts, insisting that they were far too high. Before the order and circular of 1898 the cost of administration by the guardians was £72,625, but since the Act of that year the cost had been raised to £237,000. This heavy cost was felt as a grievance in many parts of the country. He also suggested that vaccination officers were placed in an altogether exceptional position, being under the guardians and at the same time receiving instructions from the Local Government Board which might enable them to defy the guardians. He drew attention to the case of the Wellingborough board of guardians and their administration of the Vaccination Acts, pointing out that the total of costs incurred by vaccination officers and solicitors in 18 months amounted to £431. Up to the present time the costs had amounted to £583, or a rate equal to ¾d. in the pound throughout the district. It was a serious state of things that a vaccination officer should be enabled to defy the authority under whom he served and to impose any expense which he chose upon the ratepayers.

Mr. WALTER LONG, President of the Local Government Board, said that in the case to which Mr. Channing had referred there was no doubt that the vaccination officer did incur unnecessary expense in taking legal advice when he could probably have dispensed with it, but he would remind the hon gentleman that when this officer was appointed he found an accumulation of arrears of work and since he had been in office he had done his work very well. The worst that could be alleged against him was that he had not sufficient confidence in himself. The matter, however, was to form the subject of local inquiry and therefore he would say nothing more about it now except that he had seen nothing in the case to justify him in removing the officer from his position though he had indicated to him the way in which he thought he might do his work, not less successfully but at less cost to the guardians. With regard to the question of death certification he entirely agreed that it was a subject with which it would be well to deal if it were possible. He did not think the facts were quite so alarming as the hon. gentleman the Member for Ilkeston (Sir Walter Foster) would have the committee believe; but none the less the subject was a very serious one. The difficulties of dealing with the question were of a serious and practical character. The practical difficulty was that if the proposals of the Bill which was prepared in 1894 were enforced, not only would very considerable additional expense be incurred but also very considerable difficulties would probably result in the indefinite and altogether undesirable postponement of burial. The matter, however, had been engaging his attention and if he saw his way to an amendment of the law which would be practicable and would carry out what they all desired, the hon. gentleman might rely upon it that he would not fail to do his best to carry it through. As to boarding out pauper children, he confessed that he thought the barrack system had been a little hardly dealt with, but it was too late to take that view now. They were tried and were condemned, and in the case of the great Sutton schools had already been broken up. When the guardians now made proposals for dealing with their children the department never lost an opportunity of recommending them to adopt the cottage home or the boarding-out system. But the guardians were in possession of the facts of the case as well as the department and it was for them to make proposals. If those proposals appeared to depart from the principles that had been laid down the department insisted on their alteration.

Mr. KEARLEY then spoke of the administration of the Food Adulteration Acts. The figures furnished by the return of the Local Government Board showed, he said, that the surest way of getting efficient administration of these Acts was to insist upon the local authorities taking a great number of samples. That was the only possible way of diminishing the percentage of adulteration. The Acts were working beneficially but there was plenty of room for improvement. He wished to call particular attention to the adulteration of milk in London. The Local Government Board report showed that in London the adulteration of milk was simply rampant. The average percentage of adulteration of milk in the 20 largest towns, excluding London, was 8·3 per cent.; in the whole of the metropolis it was 15·2 per cent. In the City of London the percentage of adulteration found in the number of samples taken was 21 per cent.; in St. Pancras, 34 per cent.; in Shoreditch, 30 per cent.; and in Hackney about 36 per cent. In Manchester, where the Acts had been properly administered for some years, the percentage of adulteration of milk was only 3½ per cent. That showed what could be done by efficient administration of the Acts. The Local Government Board should appoint special inspectors to put an end to this adulteration of milk in London. If prosecution alone did not suffice imprisonment should be made to follow.

Mr. PARTINGTON advocated a reduction in the medical charges for vaccination and recommended that the Local Government Board should supply lymph to all medical practitioners who require it.

Mr. SOARES thought that Government lymph should be supplied to private as well as public vaccinators.

Mr. SPEAR thought that on the occasion of an epidemic of small-pox public stations for revaccination should be opened.

Mr. WALTER LONG said with regard to the fees charged by vaccinators that he had been at some pains to try to find a satisfactory settlement of the question. There had been considerable communication with medical men on the one hand and local authorities on the other, but he had not been able to arrive at a conclusion which would justify him in proceeding to an alteration at once. He had thought it best to seek a report from a small departmental committee, after which he proposed to decide definitely what should be done. As to the supply of lymph, he could not hold out any hope of being able to provide lymph to private practitioners. It had to be remembered that public vaccinators obtained their lymph for primary vaccination free of charge and during the recent epidemic of small-pox the Board was able to supply them not only with the lymph for primary vaccination but also with a large proportion of what was required for secondary vaccination. The demand that the lymph should be supplied also to the private practitioner was a very natural one but he doubted whether it was really necessary. There was the Jenner Institute in London which made arrangements for the supply of lymph quite as good in quality and character as that supplied by the Government. In addition to that there were growing up over the country great laboratories in which all sorts of admirable scientific work was being carried on and in which, among other things, they were producing lymph which probably would be as good as any produced by the Government. There was also the lymph produced by ordinary mercantile firms. During the recent epidemic of small-pox he made every inquiry to see whether there was any justification for the idea that this ordinary mercantile lymph was not of a thoroughly satisfactory character but he failed to find any evidence that the majority of it could not be relied upon as being thoroughly satisfactory in all respects. To undertake to supply all medical men with a supply of lymph at a certain price would mean an entire change in the Government lymph establishment and the ruin of the commercial people who had entered upon its manufacture as part of their business. Moreover, it was quite conceivable that at times of great pressure the Government department would not be able to supply all the lymph required and the result would be a breakdown. By a recent scientific discovery which was not yet fully developed it might be possible to produce lymph which would not have to be destroyed if kept beyond a certain time, but at present the real difficulty with which they had to contend was the fact that lymph could not be produced during the slack time and put in reserve for use when the pressure came. He quite realised the force of the demand and he was not making this statement without having carefully considered and discussed the question, not only with his own medical advisers but also with distinguished medical men outside the department. Among those who were best qualified to judge it was agreed that it was better to continue the present system than to put the whole supply of lymph into the hands of the Government. With regard to the administration of the Adulteration Acts, nothing would be more prejudicial than to let the local authorities believe that the Local Government Board was

willing to do their work for them and to bear the expense. When the local authority did not do its work as well as it ought the department immediately pressed on it the importance of taking samples and vigorously applying the Act of 1899. The Act had not been long on the statute-book but it had already produced good results, and as far as he was responsible for the administration of the Local Government Board he should be careful that the local authorities were constantly reminded of, and kept up to, their duties.

FRIDAY, JUNE 12TH.

Vaccination Prosecutions.

Mr. SEYMOUR ORMSBY-GORE asked the President of the Local Government Board whether his attention had been drawn to the fact that officers of the Local Government Board had directed prosecutions to be instituted against persons for non-compliance with the Vaccination Act of 1898 in the town of Gainsborough, and that these proceedings had been taken without previous consultation with the board of guardians; and whether, seeing that the board of guardians had decided not to prosecute cases coming within the Act, he would state what steps he proposed to take in the matter.—Mr. LONG replied: A medical inspector of my department pointed out to the vaccination officers that it was their duty under the Vaccination Acts to take proceedings in cases of default, but he did not direct prosecutions to be instituted. As regards the last part of the question I do not propose to take any steps in the matter. It has been decided by the High Court that a vaccination officer is empowered to take proceedings of the kind referred to notwithstanding directions from the guardians not to prosecute.

MONDAY, JUNE 15TH.

Professor E. A. Schäfer's Experiments.

Mr. PERKS asked the Home Secretary whether, as reported at a recent meeting of the committee of the Royal Medical and Chirurgical Society, Professor Schäfer had obtained permission to conduct experiments on dogs without anæsthetics for the purpose of investigating the phenomena of death from drowning; whether he was aware that these experiments had hitherto been conducted under chloroform; and whether he would take steps to prevent the infliction of cruelty which the experiments authorised involve.—Mr. AKERS-DOUGLAS replied: Professor Schäfer has obtained the certificates required by the Act to enable him to perform certain experiments on dogs for the purpose of investigating not the phenomena of death from drowning but the best means of effecting resuscitation in cases of apparent drowning. The experiments will be performed on behalf of the Royal Medical and Chirurgical Society of London, which body has appointed a committee to consider this question. I am aware that Professor Schäfer has performed experiments on the effect of immersion on anæsthetised dogs, but I am informed that the use of anæsthetics frustrated the object of the experiments. In view of the great importance of the subject in connexion with the saving of human life and of the strong recommendations received in support of the experiments I have not felt justified in disallowing the certificates.

Tuberculosis Commission.

Dr. FARQUHARSON asked the President of the Local Government Board what progress had been made in the investigations by the Royal Commission on Tuberculosis during the past 12 months on the two farms at Stanstead, lent by Sir James Blyth, and whether a report would shortly be issued.—Mr. LONG replied: I am informed that considerable progress has been made in the investigations instituted by the Royal Commission. It is stated, however, that the ground to be covered by the experiments is very extensive and that some time must necessarily elapse before any report by the Commission can be issued.

Imported Milk.

Sir EDWARD STRACHEY asked the Secretary to the Treasury whether the Chairman of the Board of Customs was prohibited by statute from giving the names and addresses of persons importing milk from abroad; and whether, if it was desired that the names of such persons should be made public, legislation would be required; and if so whether the Government would introduce a Bill for such purpose.—Mr. ARTHUR ELLIOT replied: The Board of Customs is not prohibited by statute from giving the names and addresses of importers of milk. The names of such importers are, in fact, published in the periodical Customs bills of entry for certain ports which are available to subscribers. It is, however, the duty of the Board of Customs to exercise discretion as to the supply of information to persons making inquiry about the business of others.

TUESDAY, JUNE 16TH.

Lunacy in Ireland.

Mr. SAMUEL YOUNG asked the Chief Secretary to the Lord Lieutenant of Ireland whether the Workhouse Commission, when going into the question of utilising some of the workhouses as auxiliary asylums, would inquire into the apparent increase in lunacy and the accommodation and management of lunatic asylums; whether, if an inquiry into the increase of lunacy was not within the scope of the Workhouse Commission, he would extend the scope to supply the desired accurate information on the subject; and whether he would say if the inspectors of lunacy had recommended that such an inquiry should not be held.—Mr. WYNDHAM replied: The commission will inquire into the classification and treatment of the insane who are relieved from the poor-rates in workhouses but will not investigate the question of the accommodation and management of district lunatic asylums, nor will it inquire into the general question of the increase in lunacy. In reply to the concluding inquiry, any communications that may have passed between the Government and the inspectors of lunatics on the subject of the commission are confidential.

Poor-law Medical Officers in Ireland.

Dr. THOMPSON asked the Chief Secretary to the Lord Lieutenant of Ireland whether, in view of the dissatisfaction existing among the Irish Poor-law medical officers, he would consent to appoint in the near future a Royal Commission to inquire into the working of the Irish Poor-law system in all its branches.—Mr. WYNDHAM replied: The Commission recently appointed will consider the general question of the amalgamation of unions and certain other reforms in Irish Poor-law administration which have been indicated in the published warrant constituting the commission. The deliberations of the commission have been limited in their scope with a view to the completion of the necessary inquiries in the shortest possible time and to the avoidance of matters which are regarded as contentious. As at present advised I am not prepared to recommend the appointment of a commission to investigate the larger question of the working of the Poor-law system in all its branches.

Sewage Treatment.

Sir JOHN ROLLESTON asked the Home Secretary whether his attention had been called to explosions of septic tanks at Exeter during the experimental stages, at Walton-on-the-Naze in December last, and at Sheringham in Norfolk on May 1st last, the last of which caused the death of three people and injuries to several others; and if so whether in view of the number of septic tanks which had lately been erected throughout the country he would consider the advisability of making these tanks subject to a special licence.—Mr. LONG said: My right honourable friend has asked me to answer this question. I am aware of the unfortunate explosion at Sheringham and I have received some information as to the other two cases referred to. The Royal Commission on Sewage Disposal is at present investigating the various methods and appliances for the disposal of sewage, including septic tanks, and I understand it has caused special inquiry to be made into the circumstances of the accident at Sheringham. Legislation would be necessary to give effect to the suggestion contained in the question, but it would seem to be desirable to await the report of the Commission before determining whether any legislation should be undertaken on the subject.

WEDNESDAY, JUNE 17TH.

Tuberculosis Commission.

Mr. LONG, in reply to Mr. FIELD, said that no report had been issued by the Royal Commission on Tuberculosis either to officials or otherwise.

BOOKS, ETC., RECEIVED.

APPLETON, D., AND CO., 25, Bedford-street, Covent-garden, W.C.

Diseases of the Heart and Arterial System. By Robert H. Babcock, A.M., M.D., Professor of Clinical Medicine and Diseases of the Chest, College of Physicians and Surgeons, Chicago. Price 25*s.* net.

BAILLIÈRE, J. B., ET FILS, 19, Rue Hautefeuille, Paris.

Le Traitement de la Constipation. Par le Dr. Froussard, Ancien Interne des Hôpitaux de Paris. Préface par le Dr. Maurice Soupault, Médicin des Hôpitaux de Paris. Price 1 fr. 50.

BAILLIÈRE, TINDALL, AND COX, 8, Henrietta-street, Covent-garden, W.C.

Protozoa and Disease. By J. Jackson Clarke, M B. Lond., author of "Surgical Pathology and Principles," &c. Part I. Price 7*s.* 6*d.* net.

Manual of Medicine. By Thomas Kirkpatrick Monro, M.A., M D., Fellow of, and Examiner to, the Faculty of Physicians and Surgeons, Glasgow. Price 18*s.* net.

CHURCHILL, J. & A., 7, Great Marlborough-street, W.

Saint Thomas's Hospital Reports. New Series. Edited by Dr. H. P. Hawkins and Mr. W. H. Battle. Vol. XXX. Price 8*s.* 6*d.*

The Microscopical Examination of Foods and Drugs. By Henry George Greenish, F.I.C., F.L.S., Professor of Pharmaceutics to the Pharmaceutical Society of Great Britain. Price 10*s.* 6*d.* net.

Uric Acid as a Factor in the Causation of Disease. By Alexander Haig, M.A., M.D. Oxon., F.R.C.P., Physician to the Metropolitan Hospital and the Royal Hospital for Children and Women. Sixth edition. Price not stated.

An Inquiry into the Etiology and Pathology of Beri-beri. By Hamilton Wright, M.D. McGill, Director of the Institute for Medical Research, Federated Malay States. Vol. II., No. 1. Printed by authority of the Resident-General F.M.S. Price 3*s.* net.

An English Handbook to the Paris Medical School. By A. A. Warden, M.D., Visiting Physician to the Hertford British Hospital, Paris. With Prefatory Letters by Lord Lister and Prof. W. W. Keen. Price 2*s.* net.

On Syphonage and Hydraulic Pressure in the Large Intestine, with their Bearing upon the Treatment of Constipation, Appendicitis, &c. By Ralph Winnington Leftwich, M.D., Late Assistant Physician to the East London Children's Hospital. Price 3*s.* net.

CLARKE, JAMES, AND CO., 13 and 14, Fleet-street, E.C.

Health and Home Nursing. By Florence Lessels Mather, Health Lecturer to the Northumberland County Council. Price 1*s.*

DEUTICKE, FRANZ, Leipzig und Wien.

12,000 Fälle von Haut und Geschlechts-Krankheiten. Erstattet von Dr. Karl Pezzoli und Dr. Alexander Porges, Hilfsärzten des Ambulatoriums. Price M.3.

Die Krankheiten des Rachens. Von Prof. Dr. Ottokar Chiari, Vorstand der Klinik für Kehlkopf und Nasenkrankheiten an der K.K. Universität in Wien. Price M.8.

Die Krankheiten des Kehlkopfes und der Luftröhre. Von Dr. Philipp Schech, Professor an der Universität München. Zweite vollständig neubearbeitete und vermehrte Auflage. Price M.7.

FISCHER, GUSTAV, Jena.

Die Krankheiten der Warmen Länder. Von Dr. B. Scheube, Fürstl. Physikus und Medizinal-Rat in Greiz, Früherem Professor an der Medizinschule in Kioto (Japan). Dritte umgearbeitete Auflage. Price M.16; geb. M.18.-

GREEN, WILLIAM, AND SONS, Edinburgh.

Encyclopædia Medica. Under the General Editorship of Chalmers Watson, M.B., F.R.C.P.E. Volume xiii. Ulceration to Zinc Poisoning. Price not stated.

Practical Handbook of the Diseases of the Eye. By D. Chalmers Watson, M.B., F.R.C.P.E., Ophthalmic Physician, Marshall-street Dispensary, Edinburgh. Price not stated.

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.

Die Topographie der Niere und ihre Bedeutung für die Nieren-Chirurgie. Von Dr. M. Zondek, Berlin. Price M.3.

Vorlesungen über Kinderkrankheiten. Von Dr. Eduard Henoch, in Berlin. Elfte Auflage. Price M.17.

Die Rekto-Romanoskopie auf Anatomisch-physiologischer Grundlage. Von Professor Dr. Julius Schreiber, Direktor der Königl. medizinischen Universitäts-Poliklinik zu Königsberg i.P. Price M.8.

HODDER AND STOUGHTON, 27, Paternoster-row, E.C.

The Religious Sense in its Scientific Aspect. By Greville Macdonald, M.D. Price 3s. 6d.

KARGER, S., Karlstrasse, 15, Berlin.

Jahrbuch für Kinderheilkunde und Physische Erziehung. Unter Redaction von O. Heubner, A. Steffen, Th. Escherich, 57, der dritten Folge 7 Band. Heft 6. Ausgegeben am 1 Juni, 1903. Preis des Jahrgangs (zwei Bände) beträgt Mk. 36.

KIMPTON, HENRY, 13, Furnival-street, E.C.

The Physiological Nursery Chart. Designed by Eric Pritchard, M.A., M.D. Oxon., M.R.C.P. Lond. Price 1s. 1d. post free.

LONGMANS, GREEN, AND CO., 39, Paternoster-row, E.C.

My Relations with Carlyle. By James Anthony Froude. Price 2s. net.

MATTHEWS, JOHN, 93 and 94, Chancery-lane, W.C.

Matthews' American Armoury and Blue Book. Edited by Mr. John Matthews (Member of the Pennsylvania Historical Society, Philadelphia, U.S.A.). Price £2 2s. net.

OFFICINA TYPOGRAPHICA, 7, Calçada do Cabra, Lisbon.

Doença do Somno. Trabalhos executados até 6 de Agosto de 1902 pela Missão enviada a Angola pelo Exmo. Ministro da Marinha. Composta de Annibal Bettencourt (Chefe da Missão), Ayres Kopke, José Gomes de Rezende Junior, Annibal Correia Mendes. Price not stated.

OSBORNE, GARRETT, AND CO., 51 and 52, Frith-street, Soho, W.

A Handbook of "Chiropody." By Felix Wagner, Chiropodist. Price not stated.

PEARSON, C. ARTHUR, Limited, Henrietta-street, W.C.

The Mother's Guide to the Care of Children in Sickness and Health. By Lydia Leney, M.D., Oculist to the London School Board, Clinical Assistant to the New Hospital for Women and Children. Price 3s. 6d.

REBMAN, LIMITED, 129, Shaftesbury-avenue, W.C.

A Practical Guide to Disinfection. By M. J. Rosenau, M.D., Director of the Hygienic Laboratory and Passed Assistant Surgeon U.S. Marine Hospital Service, Washington, D.C. With a Supplement by Francis J. Allan, M.D., F.R.S. Edin., D.P.H. Camb., Medical Officer of Health of the City of Westminster. Price 10s. 6d. net.

A Model Sanatorium for the Treatment of Pulmonary Tuberculosis. An Essay submitted in the Competition for the Erection of a Sanatorium for Tuberculosis. By Alexander G. R. Foulerton, F.R.C.S., D.P.H., Cambridge, with whom is associated, as Architect, R. Langton Cole, F.R.I.B.A., London. Reprinted from *Public Health*, March, 1903. Price not stated.

High-frequency Currents in the Treatment of Some Diseases. By Chisholm Williams, F.R.C.S. Edin. Price 10s. 6d. net.

Medical Microscopy. By T. E. Oertel, M.D., Professor of Histology, Pathology, Bacteriology, and Clinical Microscopy, Medical Department, University of Georgia. Price 9s. net.

A Text-book of Pharmacology and Therapeutics, or the Action of Drugs in Health and Disease. By Arthur R. Cushny, M.A., M.D. Aberd., Professor of Materia Medica and Therapeutics in the University of Michigan. Third Edition, revised and enlarged. Price 17s. 6d. net.

Bacteria in Milk and its Products. By H. W. Conn, Ph.D., Professor of Biology, Wesleyan University. Price 6s. net.

Introduction to the Study of Malarial Diseases. By Dr. Reinhold Ruge of the Imperial German Navy. Translated by P. Edgar, M.B., C.M. Edin., District Surgeon, Teluk Anson, F.M.S., and M. Eden Paul, M.D. Brux., M.R.C.S., L.R.C.P. Price 9s. net.

Progressive Medicine. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Volume I., March, 1903. Price 15s. net per volume.

A System of Psychologic Therapeutics. Edited by Solomon Solis Cohen, A.M., M.D. Volume X.: Pneumotherapy, including Aerotherapy and Inhalation Methods and Therapy. By Dr. Paul Louis Tissier, one-time Interne of the Paris Hospitals. Price 12s. 6d. net.

Cellular Toxins, or the Chemical Factors in the Causation of Disease. By Victor C. Vaughan, M.D., LL.D., Professor of Hygiene and Physiological Chemistry and Director of the Hygienic Laboratory in the University of Michigan, and Frederick G. Novy, M.D., Sc.D., Junior Professor of Hygiene and Physiological Chemistry in the University of Michigan. Fourth edition, revised and enlarged. Price 14s. net.

SIMPKIN, MARSHALL, HAMILTON, KENT, AND CO., LTD., London.

Indian Medical Service, Past and Present. By Surgeon-General W. B. Beatson, M.D., M.R.A.S., F.R.C.P. Lond. (late Deputy Surgeon-General, Lahore Division). Second edition, revised and supplemented. Price not stated.

SPRINGER, JULIUS, Monbijouplatz, 3, Berlin, N.

Die Krankheiten der oberen Luftwege. Von Prof. Dr. Moritz Schmidt. Dritte, sehr vermehrte und verbesserte Auflage. Price M.18.

THACKER AND COMPANY, Limited, Bombay.

Legal Medicine (in India) and Toxicology. Illustrative cases. By Major Collis Barry, I.M.S., F.R.S.E., F.I.C., &c., Chemical Analyser to the Government of Bombay. Volume II. Price not stated.

URBAN UND SCHWARZENBERG, Berlin and Vienna.

Handbuch der Allgemeinen and Lokalen Anæsthesie. Von Prof. Dr. F. L. Dumont, Oberarzt des Diakonissenhauses Bern. Price M.7.

VIGOT FRÈRES, 23, Place de l'Ecole de Médecine, Paris.

Traité des Urines: L'Analyse des Urines considérée comme un des Eléments de Diagnostic. Par le Dr. E. Gérard, Professeur à la Faculté de Médecine et de Pharmacie de Lille. Price 7 francs.

VOGEL UND KREIENBRINK, Dessauerstrasse, 25, Berlin, S.W.

Parasitäre Krebsforschung und der Nachweis der Krebsparasiten am Lebenden. Von Prof. Dr. Max Schüller in Berlin. (Abhandlungen aus dem Gebiete der Krebsforschung, herausgegeben von Prof. Dr. M. Schüller, Berlin.) Price M.2.

WILEY, JOHN, AND SONS, New York. (Chapman and Hall, Ltd., London.

A Text-book of Organic Chemistry. By Dr. A. F. Holleman, Professor Ordinarius in the University of Groningen, Netherlands. Translated from the Second Dutch Edition by A. Jamieson Walker, Ph.D. Heidelberg, B.A., Head of the Department of Chemistry, Municipal Technical College, Derby, England, assisted by Owen E. Mott, Ph.D. Heidelberg, with the cooperation of the author. First edition. Price $2.50.

WRIGHT, JOHN, AND CO., Bristol.

Eye Symptoms as Aids in Diagnosis. By Edward Magennis, M.D., D.P.H., late Clinical Assistant at the Royal London Ophthalmic Hospital. Price 2s. net.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ANDREWS, HENRY RUSSELL, M.D., B.S. Lond., M.R.C.P. Lond., has been appointed Assistant Obstetric Physician to the London Hospital.

BEATTIE, R., M.D., M.S.Q.U.I., has been appointed Medical Officer of Health for Dewsbury Corporation.

BRADFORD, J. R., M.D. Lond., has been appointed Professor of Medicine at University College, London, vice Dr. Poore.

COOK, J. B., M.B., M.R.C.S., has been appointed House Surgeon to the Royal Alexandra Hospital for Sick Children, Brighton.

CRISP, JAMES ELLIS, M.R.C.S. Eng., L.S.A. Lond., has been appointed Medical Officer for the Lacock District by the Chippenham Board of Guardians.

DAVIS, HENRY, M.R.C.S., has been appointed Anæsthetist to the French Hospital.

FLETCHER, R. BRENNAND, M.B., Ch.B. Vict., has been appointed Resident Medical Officer to St. Mary's Hospital, Manchester.

GRIFFITH, W. STARBUCK, M.B., C.M. Edin., has been appointed to the Medical Charge of Troops at South Hook Fort, Milford Haven, South Wales.

HARRIS, JOHN HENRY, M.D. Durh., M.R.C.S., L.S.A., D.P.H. Camb., has been appointed Medical Officer of Health for Dartmouth.

HOLCROFT, WILLIAM FRANCIS LUCIUS AUSTIN, M.B., B.Ch. Edin., has been appointed Medical Officer of Health for the Wolland District for three years by the Southmolton (Devon) Board of Guardians.

KELLOCK, THOMAS H., M.B., B.S. Cantab., F.R.C.S. Eng., has been elected a Surgeon to the Hospital for Sick Children, Great Ormond-street.

LYLE, H. WILLOUGHBY, M.D., B.S. Lond., F.R.C.S. Eng., has been appointed Honorary Assistant Surgeon to the Royal Eye Hospital, Southwark.

MENDES, THOMAS A., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Second Assistant Medical Officer at the County and City Asylum, Hereford.

POORE, G. V., M.D. Lond., has been appointed Emeritus Professor of Medicine and Clinical Medicine at University College, London.

ROCHE, ANTONY, M.R.C.P., L.R.C.S. Irel., has been appointed Lecturer on Hygiene to the Department of Technical Education and Agriculture for Ireland.

THORP, W., M.B., B.S. Lond., has been appointed House Surgeon to the Kettering and District General Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ARMY MEDICAL SERVICE.—Examination of Candidates for not less than 30 Commissions in the Royal Army Medical Corps.

AYLESBURY, ROYAL BUCKINGHAMSHIRE HOSPITAL.—Resident Surgeon, unmarried. Salary £80, rising to £100, with board and apartments.

BIRKENHEAD BOROUGH HOSPITAL.—Junior Male House Surgeon. Salary £30 per annum, with board and washing.

BIRMINGHAM AND MIDLAND FREE HOSPITAL FOR SICK CHILDREN.—Resident Surgical Officer. Salary £60 per annum, rising to £80 in three months, with board, washing, and attendance.

CHELSEA HOSPITAL FOR WOMEN, Fulham-road, S.W.—Clinical Assistant for three months. Fee £5 5s. and £3 3s. for one and two attendances per week respectively.

DUDLEY GUEST HOSPITAL.—Assistant House Surgeon, for six months. Salary £40 per annum, with residence, board, and washing.

EAST SUSSEX COUNTY ASYLUM, Hellingly.—Second Assistant Medical Officer, unmarried. Salary £200 a year, with board, lodging, washing, and attendance.

EVELINA HOSPITAL FOR CHILDREN, Southwark, S.E.—Four Clinical Assistants.

GUARDIANS OF THE POOR OF ST. MARY, ISLINGTON.—Medical Officer and Public Vaccinator for No. 1 District. Salary £100 per annum, with fees.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Honorarium of £25.

ISLE OF WIGHT COUNTY HOSPITAL, Ryde.—Resident House Surgeon. Salary £90 per annum.

ITALIAN HOSPITAL, Queen-square, London, W.C.—Honorary Assistant Dental Surgeon.

KENSINGTON DISPENSARY AND CHILDREN'S HOSPITAL.—Vacancy on the Honorary Medical Staff.

KENT AND CANTERBURY HOSPITAL.—House Surgeon, unmarried. Salary £80 a year, with board and lodging.

KENT COUNTY OPHTHALMIC HOSPITAL, Maidstone.—Surgeon.

LIVERPOOL DISPENSARIES.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

LIVERPOOL EYE AND EAR INFIRMARY.—House Surgeon. Salary £80, with residence and maintenance.

MONSALL FEVER HOSPITAL, Manchester.—Fourth Medical Assistant. Salary £100 per annum, with board, lodging, and washing.

NEWPORT AND MONMOUTHSHIRE HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, residence, and washing.

OWENS COLLEGE, Manchester.—Junior Demonstrator in Physiology. Stipend £100, rising to £150 per annum.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Assistant Resident Medical Officer for four months. Salary at rate of £50 per annum, with board, residence, and washing.

ROYAL ALBERT HOSPITAL, Devonport.—Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

ROYAL HALIFAX INFIRMARY.—Third House Surgeon, unmarried. Salary £80 per annum, with residence, board, and washing.

ROYAL UNITED HOSPITAL, Bath.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

ROYAL VETERINARY COLLEGE.—Professor of Physiology and Histology. Also Professor of Chemistry.

ST. MARY'S HOSPITAL FOR SICK CHILDREN, Plaistow, London, E.—Resident Medical Officer, unmarried. Salary £100 per annum, with board, residence, and laundry.

SEAMEN'S HOSPITAL SOCIETY ("DREADNOUGHT"), Greenwich, S.E.—House Physician. Salary £65 per annum, with board, residence, and washing.

STOCKPORT INFIRMARY.—Junior Assistant House Surgeon for six months. Salary at rate of £40 per annum, with board, washing, and residence.

STOKE-UPON-TRENT, NORTH STAFFORDSHIRE INFIRMARY AND EYE HOSPITAL, Hartshill.—House Physician. Salary £100 per annum, with board and washing.

UNIVERSITY COLLEGE, London.—Resident Medical Officer.

WEST BROMWICH DISTRICT HOSPITAL.—Resident Junior House Surgeon. Salary £50 per annum, with board, lodging, washing, and attendance.

WEST END HOSPITAL FOR DISEASES OF THE NERVOUS SYSTEM, &c., 73, Welbeck-street, W.—Medical Registrar. Honorarium 50 guineas per annum.

WESTMINSTER HOSPITAL, Broad Sanctuary, S.W.—Administrator of Anæsthetics. Honorarium of £25 per annum.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Senior House Surgeon. Salary £100, with board, apartments, and washing.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

YORK DISPENSARY.—Resident Medical Officer, unmarried. Salary £120 a year, with board, lodging, and attendance.

Births, Marriages, and Deaths.

BIRTHS.

BELFRAGE.—On the 16th inst., at 1, Montagu place, W., the wife of S. Henning Belfrage, M.D., of a son.

BEST.—On June 11th, at Waltham-cross, the wife of F. H. de Graves Best, M.R.C.S., L.R.C.P. Lond., of a daughter.

HENRY.—On June 10th, at Kennington-road, S.E., the wife of G. Nicol Henry, M.B., C.M. Aberd., of a son.

SANDIFER.—On June 12th, at Porchester-gardens, W., the wife of Henry S. Sandifer, M.D., B.S. Lond., F.R.C.S. Eng., of a daughter.

STEWARD.—On June 14th, the wife of F. J. Steward, M.S., of 133, Harley-street, W., of a son.

MARRIAGES.

DUNCAN—SWAFFIELD.—On June 9th, at Sevenoaks, Robert William Duncan, M.B., M.S. Edin., of Ilford, to Marian, second daughter of Mr. Henry Swaffield, of Cornwall House, Sevenoaks.

GREENWOOD—IRVINE.—On June 10th, at the parish church, Stoke Gabriel, S. Devon, by the Rev. J. H. N. Nevill, vicar, W. Norman, eldest son of the late W. Norman Greenwood, Esq., and the late Mrs. Kirk, Greenwood Leghe, Yorkshire, to Daisy, only daughter of the late J. Pearson Irvine, M.D., F.R.C.P., Mansfield Lodge, Mansfield-street, Cavendish-square, London, W., and Mrs. J. Pearson Irvine, Cromartie, Torquay.

HENDERSON—RAYNER.—On June 9th, at Christ Church, Stockport, George P. Henderson, M.D. Edin., to Helen, daughter of Edwin Rayner, M.D.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE NOTTINGHAM CHILDREN'S HOSPITAL.

To the Editors of THE LANCET.

SIRS,—May I be permitted to call your attention to the unfairness of the comment in THE LANCET of May 9th (p. 1347) referring to the Nottingham Children's Hospital? In your issue of March 7th last (p. 699) you published an article expressing the opinion that matters at the Nottingham Hospital for Children did not seem to be in a very satisfactory condition and the action of the lady superintendent was adversely commented on. The facts upon which you based your opinion and comment were very fully set out, from a perfectly fair desire on your part not to express an opinion apparently unsupported by fact, and further, no doubt, to give the lady superintendent an opportunity of explaining, if she could, the facts stated, in a manner which would justify her conduct in your opinion, and in the opinion of your readers, or of giving in a public manner her version of the matter in order that both sides of the question might be before the public and possibly further commented on by yourselves. The article was stated to be written upon information given by me, and I quite expected that an attempt would be made in your columns on behalf of Miss du Cane to give a satisfactory explanation of her action; and I am still prepared, and indeed anxious, that this matter should receive as much public attention as possible. But in your issue of May 9th you are really unfair to me. You state in a very short note that having heard the statement of the lady superintendent on the matter you are satisfied that you unintentionally did her an injustice and that she acted in accordance with the rules of the hospital, but you do not refer in particular to one fact or circumstance laid before you by that lady upon which you have been induced to alter your opinion. I cannot help feeling that it is only necessary for me to point out the unfairness and inadequacy of the comment in order to get it amplified by further publication, setting out in full the statements made to you by Miss du Cane, as you had previously set out in full the statements made by me to you bearing upon the same matter. I ask for such a publication and I would also ask you to be good enough to publish this letter in order that your readers may know that I desire to adhere fully to the facts which I laid before you.

I do not feel that it would be right to say more at present than that the article in your issue of March 7th last met with approval from many persons intimately connected with the hospital and with the facts of the case, and that it was considered a concise and accurate statement of the true facts and I think that many persons will be interested to know the facts and circumstances by which Miss du Cane has succeeded in justifying her action to you.

I am, Sirs, yours faithfully,

Oxford, May 30th, 1903. CHARLES E. GAITSKELL.

*** Mr. Gaitskell will see that we expressed ourselves as satisfied that the lady superintendent acted in accordance with the rules of the hospital in certain circumstances. We do not consider ourselves satisfied with the rules of the hospital. No answer has been made in detail to our article.—ED. L.

A DISCLAIMER.

To the Editors of THE LANCET.

SIRS,—A letter headed the Cancer and Skin Hospital appeared in the *Liverpool Daily Post* of June 9th and I desire to say that it was inserted without my knowledge or consent. Hoping that you will insert this disclaimer, I am, Sirs, yours faithfully,

ALEX. PAUL SWANSON, L.R.C.S. Irel., &c.,
Honorary Surgeon, Liverpool Cancer and Skin Disease Hospital.

Liverpool, June 11th, 1903.

SOME SOUTH AFRICAN ANIMAL DISEASES.

IN a paper which he has read before the Scottish Microscopical Society, Dr. G. Carrington Purvis of the Bacteriological Institute, Grahamstown, Cape Colony, said that there was probably no country in which domestic animals were liable to a greater variety of diseases than in South Africa. Some of those diseases which are peculiar, or almost peculiar, to South Africa are as follows:—Fly disease, horse-sickness, heart-water, red-water or Texas fever (found also in Australia and America), panting sickness ("Jag Ziekte") of the sheep, malignant malaria of the dog, catarrhal malarial fever of the sheep, and malignant jaundice of the horse. None of these diseases could be said to be infectious or contagious in any sense of the word, except perhaps the one known as "Jag Ziekte." Horse-sickness occurs annually in Natal, the Transvaal, Rhodesia, and the northern parts of Cape Colony. It assumes two forms—namely, (1) "Dikkop" characterised by subcutaneous exudations causing great thickening of the head and neck; and (2) the form produced by inoculation with virulent blood characterised by exudations into the pleura, lungs, and pericardium. When a horse has been inoculated with virulent blood there is practically nothing to note until on about the eighth day the temperature begins to rise and by the twelfth day it may be as high

as 107° F. About the twelfth day the animal is distressed in its breathing, falls down, froths from its mouth and nostrils, and almost invariably dies. Dr. Purvis believes that the disease is due to a malarial parasite, which may be either extra-corpuscular or intra-corpuscular; of these forms the first is usually more or less ovoid and the second is a minute coccus. Dr. Alexander Edington of the Bacteriological Institute at Grahamstown believes, however, that the organism of the disease is a fungus. Rinderpest has been very destructive to cattle in South Africa, as in many other parts of the world; its pathogenesis is not yet definitely ascertained, but Dr. Purvis considers it to be due to a small bacterium or coccus which he has discovered. He has also devised both a curative and a prophylactic method of treating sheep for "heart-water." The former of these is, he says, similar to the one which he advocated in THE LANCET of Dec. 20th, 1890, p. 1354, for scarlet fever in the human subject.

AN EARLY OBSERVATION ON THE USE OF THE MOSQUITO NET.

A CORRESPONDENT sends us the following quotation from the *Edinburgh Review* of August, 1822, pp. 546, 547:—

> "It was lately observed casually that some persons who slept in one of these pestilential spots in Italy under a canopeum or mosquito net *escaped* the effects of the miasm, whilst those *unprovided* with this expedient took the disease" (i.e., Roman Ague or Malaria). Dr. G. Brocchi, "Dello Stato Fisico del Suolo di Roma."

Our correspondent adds that the reviewer designates it, "if true, as one of the most valuable discoveries in modern times in prophylaxis," but that the explanation "that the air breathed and expired by the sleeper acts as an antiseptic, being kept enclosed under the canopeum," is, of course, fanciful and absurd.

MEMORIAL TABLETS.

A MEMORIAL tablet, as follows, has been affixed to a new house situated in Orford-place, Norwich, now occupied by a firm of solicitors. Orford-place, it may be stated, has been rebuilt owing to the widening of the road for the electric tramway.

> "This house is the site of the residence of Sir Thomas Browne, M.D., author of Religio Medici, Vulgar Errors, and many other learned works. He lived here for about 46 years and died in 1682."

Such memorial tablets are always very interesting and we should be glad to see more of them put up by people who own or dwell in historical buildings or places.

THE UNCOVERED DUSTBIN.

THOSE who may have occasion to pass along the main streets of the City or West-end of London before nine in the morning may observe rows of uncovered dustbins standing on the curbstones like sentinels awaiting a procession. When there is a high wind not a small portion of their contents is whirled down the streets and eddies caressingly round the garments and features of the long-suffering pedestrian, while on warmer mornings distasteful effluvia are wafted to the nostrils of the hurrying business man who is trying to procure a few breaths of life-supporting oxygen. Those who are not obliged to reach their office, shop, or warehouse until a later hour perhaps hardly realise what advantages they have over their less fortunate brethren. We do not know why these dustbins do not have covers unless it is that the covers would require to be chained and padlocked to the receptacle because some people may have a fondness for annexing such trifles or else, perhaps, because the dustmen who collect the contents of the bins find it too much trouble to remove and to replace a cover. The City corporation has recently prosecuted some dustbin grubbers and proved that the City dustbins and their contents are the property of the corporation and that anyone grubbing in its dustbins is not only offending against the canons of sanitary science but is also guilty of theft from the corporation. It is hardly out of place to mention that those members of the public who have a fancy for writing to irresponsible and seductive strangers detailing their complaints should be careful of what they are doing, as we recently observed untorn letters which had blown out of an uncovered dustbin lying on the pavement outside the office of a not unknown quack.

PALMAR ECZEMA AND DYSIDROSIS.

IN the June number of the *Polyclinic* among the "Notes of Cases Demonstrated" there are some remarks on plantar and palmar eczema as compared with dysidrosis. With regard to palmar eczema it is pointed out that the diagnosis does not as a rule present any serious difficulty, since in the majority of cases chronic itching eruptions limited to this region are eczematous. It is important to reduce the thickened epidermis by the use of such means as salicylic acid or pyrogallic acid. The case of dysidrosis which was the subject of demonstration occurred in a girl, aged about 13 years, but was not typical. When she was first seen at the Victoria Hospital for Children the sides of the hands were covered with vesicles and small bullæ; these had coalesced in the palms and the greater portion of the epidermis of the palms was macerated. Under treatment with boric lotion and weak boric ointment kept almost constantly applied the condition had greatly improved and the inflammation had subsided considerably.

F.R.C.S. Eng.—Beard and Rockwell, Electro-Therapeutics, being one volume of von Ziemssen's Cyclopædia; Lewis Jones, Medical Electricity; Dawson Turner, Manual of Medical Electricity; Chisholm Williams, High Frequency Currents in the Treatment of some Diseases. Beard and Rockwell's book, though full so far as it goes, is, in the light of the rapid advance made in the knowledge of electricity and kindred forms of energy, not quite up to date.

M. X.—We think that the insurance company ought to pay the fee, but in view of the statement on the forms to which our correspondent refers we are doubtful whether he can legally claim the amount. The enforcement of the claim would have to be in the county-court and it is impossible to say what view the judge might take of the matter.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.) London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat Golden-square (9.30 A.M.), Soho-square (2 P.M.).

WEDNESDAY (24th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.) Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M).

THURSDAY (25th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat, (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (26th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.).

SATURDAY (27th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex, (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (22nd).—ODONTOLOGICAL SOCIETY OF GREAT BRITAIN (20, Hanover-square, W.).—7 P.M. Council. 8 P.M. Annual General Meeting. Election of Officers and Council for the ensuing Session. Casual Communications:—Mr. Charters-White: Photo-micrographs of a much-vaunted Dentifrice.—Mr. J. H. Badcock: (1) Fracture of the Mandible during attempted Extraction of a Lower Wisdom Tooth; (2) A Case of Malocclusion due to Tongue-sucking. The President: Valedictory Address.

TUESDAY (23rd).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M. Paper:—Dr. G. Rankin: The Treatment of Aneurysm by Subcutaneous Injection of

Gelatin.—Mr. D'Arcy Power and Mr. G. H. Colt: A Case of Aneurysm of the Abdominal Aorta treated by the Introduction of Silver Wire, with a Description of Instruments Invented and Constructed by Mr. G. H. Colt to Facilitate the Introduction of Wire into Aneurysms (with demonstration by means of the epidiascope).

WEDNESDAY (24th).—DERMATOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND (20, Hanover-square, W.).—5 P.M. Annual Oration:—Dr. Galloway: The Relations of Different Forms of Erythema, especially to Lupus Erythematosus.

FRIDAY (26th).—WEST LONDON MEDICO-CHIRURGICAL SOCIETY (Society's Rooms, West London Hospital).—8.30 P.M. Prof. T. C. Allbutt: Disease of the Ascending Aorta. (Cavendish Lecture.)

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (22nd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. A. Whitfield: Clinique. (Skin.) 5.15 P.M. Mr. J. Hutchinson, jun.: Diseases of the Tongue.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Dunn: Glaucoma.

TUESDAY (23rd).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. G. Rankin: Clinique. (Medical.) 5.15 P.M. Mr. F. C. Wallis: Preparation, Methods, and After-treatment in Operations.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Paget: Appendicitis.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury).—3.30 P.M. Dr. Ferrier: Cases in the Wards.

WEDNESDAY (24th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Clarke: Clinique. (Surgical.) 5.15 P.M. Dr. W. Carr: Meningitis in Childhood.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. R. H. Cole: Medico-Legal Relations of Insanity.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. B. Shaw: Some Unusual Auscultatory Phenomena met with in the Examination of the Lungs.

THURSDAY (25th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Mr. J. Hutchinson, jun.: Diseases of the Tongue.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Edwards: Renal Surgery.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (7, Fitzroy-square, W.).—4 P.M. Dr. T. N. Kelynack: The Hygienic Treatment of Pulmonary Tuberculosis. (Post-Graduate Course.)

CHARING CROSS HOSPITAL.—4 P.M. Mr. Gibbs: Surgical Cases. (Post-Graduate Course.)

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Mr. H. S. Collier: Demonstration of Selected Cases.

GUY'S HOSPITAL MEDICAL SCHOOL—UNIVERSITY OF LONDON (Physiological Theatre).—4 P.M. Dr. E. W. Ainley Walker: Recent Work upon the Nature of Immunity. (Gordon Lecture.)

FRIDAY (26th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. N. MacLehose: Clinique. (Eye.) 5.15 P.M. Dr. T. N. Kelynack: Intra-thoracic Tumours.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. C. Williams: Electric Light Treatment.

LONDON HOSPITAL MEDICAL COLLEGE (University of London) (New Clinical Theatre).—4 P.M. Mr. J. Hutchinson: Diseases in India—Cancer and Tumours in India.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

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The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, June 18th, 1903.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radia in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb	Remarks at 8.30 a.m.
June 12	30·02	N.E.	0·23	87	55	47	47	52	Cloudy
,, 13	29·97	S.	...	97	60	46	50	54	Cloudy
,, 14	29·80	N.	1·50	59	53	48	50	50	Raining
,, 15	29·64	S.W.	1·08	67	54	50	50	50	Raining
,, 16	29·59	S.E.	1·05	105	59	47	50	54	Cloudy
,, 17	29·71	N.W.	0·07	111	67	49	51	54	Cloudy
,, 18	29·68	N.E.	0·25	97	58	47	48	52	Cloudy

During the week marked copies of the following newspapers have been received: *Ardrossan and Saltcoats Herald, Folkestone Express, Irish Times, Shields News, Yorkshire Observer, Whitehaven Advertiser, Edinburgh Evening News, Glasgow Herald, Darlington Star, Cardiff Mail, Cardiff News, Sheffield Independent, North-Eastern Daily Gazette, Hull Daily News, Birmingham Daily Mail, Belfast News, Bolton Chronicle, Dublin Independent, Blackburn Telegraph, Pall Mall Gazette, Cork Constitution, Bradford Argus, Retford Times, Cork Herald, Bristol Mercury, Westminster Gazette, Hereford Times, Sanitary Record, Army and Navy Gazette, Surrey Comet, &c.*

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